





THE AEROPLANE

1P
WEEKLY

Edited by CHAS. G. GREY. ("Aero-Amateur")

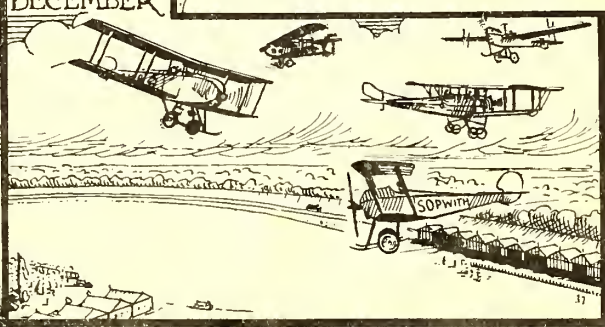
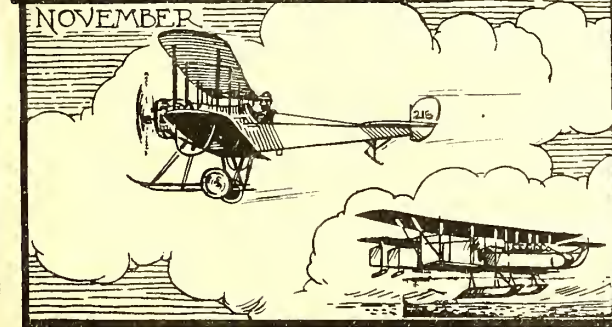
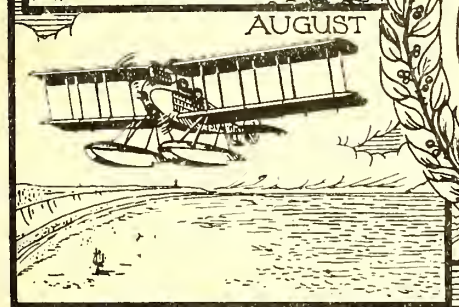
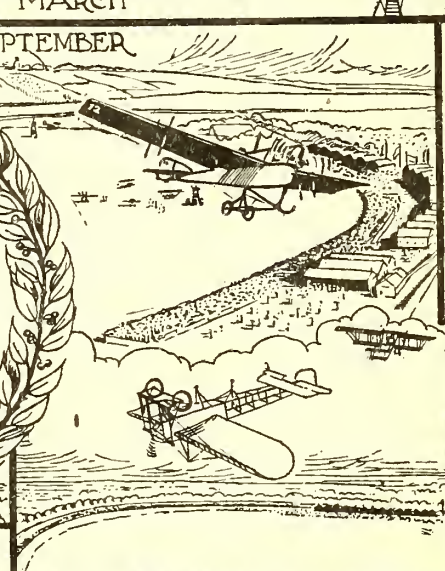
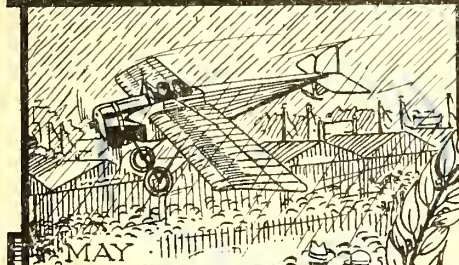
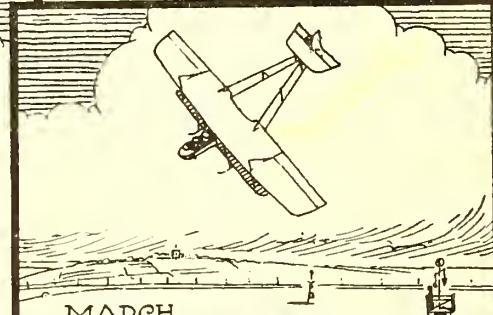
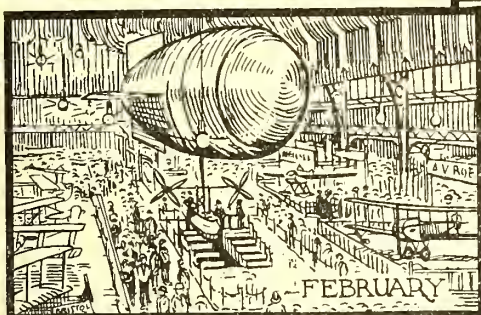
8 TL
501
A 552
NASH
V-4
No 1-22

Jan 1914
VOL. VI

[REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, JANUARY 1, 1914

No. 1



The special design of the

Handley Page Planes

gives to the aeroplane that inherent stability which makes this machine so easy to learn upon, so simple to fly.

Flying School - - Hendon

TELEPHONE
2574 VICTORIA.

TELEGRAMS
HYDROPHID,
SOWEST
LONDON.

HANDLEY PAGE, Ltd.,

72, Victoria Street, S.W.,

CONTRACTORS TO H.M. WAR OFFICE.

WORKS:
CRICKLEWOOD,
LONDON, N.W

The

Bristol

Flying Schools

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types, of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.

FILTON HOUSE, BRISTOL.



THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.		ABROAD.	
	s. d.		s. d.
3 months, post free	1 8	3 months, post free	2 9
6 " " "	3 3	6 " " "	5 6
12 " " "	6 6	12 " " "	11 0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

1913.

Taking it all round, the year 1913, despite its ominous number, has been a very great one for British aeronautics. It is true that, as a whole, Great Britain is a bad third to France and Germany, but we are not so far behind as we were, and in one or two matters we are ahead of our rivals. As has often been said, we are a nation of shopkeepers—and retail shopkeepers at that. We lack the fine wholesale spirit of the American who goes over head and ears into any new thing that looks like a business gamble. So far the American can see nothing in aeronautics, so he has hardly touched it, except for Mr. Curtiss, Mr. Burgess, the Wrights, and a few more; but when he does we must look out. We lack the quick wit of the Frenchman, who takes up a new thing because it is new, and becomes bored with it as soon as he sees how the toy works. We lack the steady application of the German, who sets to work clumsily to make the wheels go round, and ends by making the toy into a science. But, somehow, when we have let everyone take the lead of us, we worry through because we are, as a people, too stupid to know when we are beaten, so long as there is someone to spur us onward.

Consider the history of the motor trade—and of the cycle trade before it. France began it, as a trade, though a few crazy Yankees and Britishers got themselves laughed at for wasting their time on such foolish ideas. Then the Germans began to work quietly. Then the English business-man followed suit. Then the Americans began in earnest and flooded the world's markets with cheap stuff. At present, cheap and flashy American cars have just stirred up the English makers to a serious effort to compete with them, and the Germans are turning out ugly but sound stuff, which is really better than the American article. Some of us saw it all happen in the cycle trade in 1897 to 1899, and others of us may live to see it again in the aeroplane trade about 1925 to 1930 or so. To-day some British cars can hold their own against anything in the world, and any good British car is as good as any foreign car at the price.

Still, it always seems to me that, if our own people would hustle their brains, and their pockets, a little more, we might go straight ahead and beat the world, instead of having to wait till German and American competition frightens us into really exerting ourselves. There is a particularly fine chance just now because the aeroplane trade, instead of having the foolish public for customers, who will take just what is handed out, have to supply the Navy and Army, who know what they want and mean to get it. On this subject I hope to enlarge at a later date. Meantime, let us consider 1913.

Where Progress is Shown.

Naturally, it has been a wonderful year. Any year in any new science or sport must, in the nature of things, be more wonderful than the year before, but

even so, the progress here and abroad during 1913 has been disproportionately rapid. Last year a flight of 200 miles in the day was quite wonderful. This year a flight has to be over 500 miles to be worthy of special notice, and two men (the Germans, Stöeffler and Schlegel) have passed 1,000 miles in the day, though the longest fast flights (Paris-Warsaw, Paris-Dantzig, and Paris-Putnitz) have been done by Frenchmen, Brindejone, Letort, and Gilbert. The Germans scored by sticking to it. And, of course, the tours, covering over 2,000 miles, by Brindejone, Dancourt, Carganico, Bonnier, and Védrières eclipse all last year's flying.

A year ago any aviator who could keep right side up had a chance of making a living and possibly a name for himself. Now one has at least to fly upside down to attract any attention at all. All the same, the future is for the machine which cannot be turned upside down.

A year ago we had no aerial defence force to speak of; now we have a small but highly efficient military flying corps, and a particularly fine organisation for a naval air service which should within the next few months become a powerful fighting force, well equipped with shore-going aeroplanes as well as seaplanes, and with a prospect of some efficient airships.

A Comparison of Accidents.

During the past year we have been singularly free from fatal aeroplane accidents, especially when one considers how much faster and farther men fly than they used to, and how much higher are the winds in which they fly. It is true that the faster machines add to the safety of flying in high winds, but they also add to the difficulty of landing, and to the danger of collisions, either with other machines or with fixed objects on the ground.

The amount of flying done may be gauged from the fact that during a good week it was nothing unusual for the pilots at the Central Flying School to cover 5,000 miles during the five days on which flying was carried on, and, of course, many thousands of miles would be covered during such a week by the various other pilots of the Royal Flying Corps, by the naval pilots, and by the schools at Hendon, Brooklands, Eastbourne, Salisbury Plain, Liverpool, and Windermere, as well as by the various exhibition fliers. Probably 12,000 to 15,000 miles covered in a week would be a moderate estimate for aviators flying in the British Isles alone. Consequently, it would be wonderful if accidents did not occur, and we are fortunate to have had so few.

Our comparative immunity may be largely ascribed to a combination of facts. Firstly, the Accidents Investigations Committee of the Royal Aero Club publishes a wonderfully reliable and well-thought-out report on every fatal accident. Then the Press, or, at any rate, a portion of it, discusses accidents freely, without bias in favour of either the pilot or the maker of the machine. Consequently, both makers and pilots

are induced to be extra careful, the former because they know that if the fault is theirs they will not be shielded as they generally are in France by the suppression of the name of the machine, and the latter because, if the accident is their own fault, they will probably be told so, as gently as possible, perhaps, but quite plainly. If an aviator gets it into his head that he has only to be killed in an aeroplane smash to be hailed as a martyr to the conquest of the air, he is less likely to be careful than if he knows he will probably be told that he is an ass and that it serves him right.

This year—unless someone is killed on the last day of the year—we have had in the British Isles ten fatal accidents, which have cost twelve lives, three of the dead being passengers. Last year we had sixteen deaths, including five passengers, in eleven accidents. Of last year's victims, one was drowned, making fourteen actual deaths in smashes. Of this year's, one was burned to death though unhurt by the smash itself, and two were drowned, so the actual number of killed was only nine. This is surely a very healthy record, considering that there has been at least five times as much flying this year as last.

There have naturally been many narrow escapes from fatal smashes, and several from drowning during experiments with seaplanes and waterplanes, and it speaks well for the stuff of which our aviators are made, that in no case of which I know has a man's nerve gone as the result of his experience. In the majority of cases the pilot is flying as cheerfully as, and generally more wisely than, before the accident. All these incidents have taught useful lessons, and even those lives which have been lost have not been absolutely wasted, for in every case something has been learned which will add to the safety of flying in the future. One can only hope that designers and manufacturers—always the last in any business to acknowledge that there is anything for them to learn—will take these lessons to heart.

The Growth of Intelligent Interest.

The best sign for the future of flying is the amount of interest now being taken in the sport by the more intelligent section of the public. The fact that fully 750,000 people visited the Hendon Aerodrome during 1913 shows how interest is growing. It was considered a poor gate on a Saturday or Sunday when less than 10,000 spectators were present, and one had only to walk about among the crowd and listen to their remarks to realise that quite a large proportion were genuine judges of good flying, and knew the game as well as if it were football or cricket.

During the year, also, a number of young men of the best social class learned to fly, and I feel sure that if someone with capital were now to start a real flying club, in which members could be sure of having reliable aeroplanes at their disposal for, say, £250 to £300 a year, plus petrol and oil, the scheme would receive very adequate support, and might be made a financial success. Many of our wealthy young men do not fly because their parents simply threaten to cut off their supply of money if they do. Now that

flying is obviously becoming at least as safe as hunting, the objection that it is an expensive way of committing suicide may easily be overcome. We may confidently expect the growth of a genuinely sporting side to aviation before long.

In yet another way much progress has been shown during the past year, for actually our politicians have taken aerial defence seriously. That Colonel Seely's political reputation has practically been broken over his maladministration of aerial defence and his perversion of the truth in his endeavours to hide the state of affairs exposed in this paper shows how large a place aviation occupies in the estimation of those who realise that politics are not altogether a rather dirty game, but do somewhat concern the safety of the nation.

Shall We Challenge France?

Finally, we have the encouraging state of affairs revealed at the Paris Aero Show, when we discovered that some British aeroplanes are better than the best French machines. Here I would like to suggest that the Society of Motor Manufacturers and Traders has an excellent chance of placing the British aeroplane industry in the position it deserves. The S.M.M. & T. can do so by issuing a challenge to the French "Chambre Syndicale de l'Industrie Aéronautique" to produce three or four French aeroplanes to meet in a series of competitions the three or four best British aeroplanes—say the Sopwith, Avro, Martinsyde, and perhaps a B.E. built by one of the Government contractors, the competitions to include range of speed, climbing and landing tests. I know the makers would send the machines if the S.M.M. & T. would find the organising expenses. I suggest the S.M.M. & T. in preference to the Royal Aero Club because it is a trade organisation whose duty it is to foster British industry, and this should be made the beginning of a purely trade campaign among foreign nations who are likely to become customers of British firms. Such a challenge would do more to impress our present ability on foreign buyers than would a dozen Olympia Shows, which they may never take the trouble to visit—and, be it remembered, aeroplanes are bought on their performances, not on their looks on a show stand. Hitherto, except for the enterprise of the Bristol Company, we have been badly left in our efforts to obtain foreign trade; in fact, we have scarcely troubled to look for it, and so we have not got any. Now we have our chance. Shall we take it?

A Review.

Hereafter follows a review of the past year. I have endeavoured to deal only with those things which have in one way or another influenced the history of flying in this country. Possibly I have omitted certain events which seem noteworthy to other people and have included some which may appear trivial. In such a matter one can only judge by the light of such understanding as has been given to one. However, such as it is, I present this review in all humility, hoping that it may provide some food for thought, and prove of some interest to those who care for history undiluted.

C. G. G.

January.

Exhibition flying in England for this year was started by Mr. Hucks, who gave several demonstrations at Lincoln.

The attacks on Colonel Seely in the House of Commons for maladministration of Aerial Defence really started in this month.

In the Naval Air Service there was much activity, and several lower deck ratings took their certificates.

On the 13th, H. F. MacDonald and Harry England were

drowned in the Thames off Erith, through descending in the river on a Vickers biplane.

A "scareship" was seen at Cardiff, the evidence being practically indisputable, and it is believed by many to have been a French dirigible making an experimental trip from the neighbourhood of the Channel Islands.

Abroad the chief event was the crossing of the Alps by Bielovucic on a Hanriot monoplane on January 25th. In Germany, the "Schütte-Lanz" dirigible, the first attempt to

LEARN TO FLY
... at the ...
VICKERS
FLYING SCHOOL
BROOKLANDS.



Thoroughly graded tuition from slow Biplane to fast Monoplane



Instructing a Pupil. Note Instructor sitting behind Pupil.

Special Terms to Naval and Military Officers.

VICKERS, Limited,
Aviation Department,
VICKERS HOUSE, BROADWAY,
LONDON, S.W.

rival the Zeppelins, was wrecked during a trial, and during the month preparations began for the establishment of a base for German naval aircraft on the island of Heligoland, formerly a British possession, in the North Sea.

February.

A show of aircraft was held at Olympia from 14th to 22nd, when for the first time British aeroplane makers began to show that their machines could stand comparison with the very best of foreign aeroplanes. (See frontispiece.)

A notable military performance was the flight to Montrose by five officers of the Royal Flying Corps. Captains Becke, Dawes, and Longcroft, and Lieuts. Herbert and Waldron left Farnborough on February 26th, and duly arrived safely at Montrose, spending several days on the journey.

Exhibitions were given this month by Mr. Hucks at Coventry and also at Newcastle, when he delivered consignments of Sinclair's tobacco in the Newcastle district. Mr. Hamel flew at Coventry. The weekly aeroplane races at Hendon also started on the last Saturday of the month, and have been kept up ever since.

The report of the joint Naval and Military Committee on monoplanes was issued on the 4th of the month, bearing the date Dec. 4th, thus showing that its publication took twice as long as the deliberations of the Committee.

Abroad, Russia initiated the system of prohibited areas for aeroplanes along her frontiers, a system now adopted by nearly all countries. Prince Axel of Denmark became a certificated aviator. The Chinese Republic began buying military aeroplanes (Caudrons). Flights were made in Assam by Marc Pourpre and Georges Verminck—the latter being killed at Saigon—and in Cambodia by Kouzminsky. Wilhelm Kress, the Austrian pioneer, who got a primitive waterplane into the air in 1898, died at the end of the month.

March.

Much interest was caused by the appearance of a new Sopwith biplane, which was built entirely from practical knowledge without any highly scientific methods and proceeded to beat all the performances of the "B.E." type biplanes which had been built by the scientists of the Royal Aircraft Factory and had been advertised in the House of Commons by the Secretary of State for War as the best aeroplane in the world.

On the first of the month the new aerial regulations were issued by the Home Office forbidding aviators to fly over certain prohibited districts, and decreeing that those arriving from abroad must land in certain prescribed areas. This was the first definite aerial legislation in this country, though Russia had forbidden flying over her frontiers a month earlier.

About the middle of the month M. Chevillard arrived at Hendon from France and proceeded to frighten everybody by his extraordinary trick of turning his Henry Farman biplane on one side and doing half a "cart-wheel" till quite near the ground. (See frontispiece.) This was really the beginning of the trick flying which culminated in various aviators looping the loop.

During the month there was a particularly acrimonious debate in the House of Commons on the provision for aircraft in the Army Estimates, and about a week later the Naval Estimates were greeted with comparative satisfaction.

On the 5th Geoffrey England was killed at Lark Hill, through the breaking of a wing of a Bristol monoplane during a sudden descent in bad weather.

At the Royal Aero Club dinner on March 17th, the first hint was given of the warfare between Colonel Seely and Mr. Joynton-Hicks, M.P., which ended in the complete victory of the latter.

On the 22nd, Easter Sunday, Marcel Desoutter fell with a Blériot monoplane and broke a leg, which subsequently had to be amputated. This was the most serious non-fatal accident of the year.

On the 23rd an aeroplane race between M. Verrier and M. Chevillard was flown in a hailstorm.

M. Marty, on a Caudron, flying from France, was arrested near Canterbury, the first offender under the new laws.

Abroad the chief performance was the new height record

of 19,292 feet, put up by M. Perreyon on a Blériot monoplane on March 11th.

Enver Bey, chief of the Young Turk Party, made a long reconnaissance on a D.F.W. biplane from Constantinople as passenger with Capt. Krey of the German Army. Various Japanese officers were learning to fly at Reims. The Zeppelin Z. 4 was destroyed at Baden-Oos on the 19th. The Zeppelin L.Z. 16 made the first test in firing a gun from the top of a dirigible.

April.

The Marquess of Tullibardine accepted the chairmanship of the Royal Aero Club at the beginning of the month, and only a fortnight later, on the 20th, Sir Charles Rose, Bart., M.P., the previous chairman, died suddenly on his way home after making his first and last flight with M. Verrier at Hendon.

On the 17th Mr. Hamel with Mr. Dupree, started from Dover on a Blériot monoplane (80 h.p. Gnome) in very bad weather, and alighted at the military aerodrome at Cologne, thus showing the practicability of aircraft for a trip from England to Germany, or vice versa.

On the 20th, Mr. Sidney Pickles made a number of exhibition flights in the Midlands, notably at Wolverhampton and Crewe, and during the King's visit to the Potteries, he provided an unofficial aerial escort to the Royal carriage on its way to Newcastle-under-Lyme.

On the 21st Paymaster Berne, R.N., was killed at Eastchurch through being struck by the propeller of a biplane on the ground.

On the 28th Lieut. Rogers-Harrison, R.F.C., was killed at Farnborough through the breaking of the Cody biplane on which he was descending steeply.

Abroad considerable impetus was given to waterplane flying by the Monaco waterplane meeting, commencing on the 2nd. In Germany Lieut. Canter made a circuit of practically the whole of northern Germany by aeroplane, covering 720 miles in eleven hours flying time, although actually taking three or four days for the journey. On the 3rd much amusement was caused by the landing of Zeppelin Z. 4 at Lunéville in France, through an accident compelling a descent.

On the 10th M. Dacourt made the first non-stop flight from Paris to Berlin. On the 24th M. Gilbert flew in the day 646 miles from Paris to Vittoria in Spain, and only three days later his performance was beaten by M. Guillaux, who flew from Biarritz to Kollum, in Holland, 764 miles, in a straight line, but over 900 miles by the route he took. The first French rigid dirigible, the "Spiess," appeared for the first time on the 14th, at St. Cyr.

May.

On the 9th His Majesty the King, accompanied by the Queen, Princess Mary, and Princess Victoria, reviewed at Farnborough all the aircraft of the British Army available for immediate service, namely, seventeen aeroplanes, and two alleged airships, and on the same day at Buc, near Paris, King Alphonso of Spain reviewed four squadrons of the French flying corps and sundry civilian machines, whose pilots had come to see the performance, the total number of aeroplanes present being over sixty.

On the 7th a public meeting was held in Liverpool in the hopes of forming a local flying corps. Some funds were promised, but local support seems to have died out since then, local patriotism not rising to national defence.

On the 10th was held the great Whitsuntide meeting at Hendon (see frontispiece), when a huge crowd of some 50,000 people were present, the particular attraction being M. Brindejone des Moulinais, who had flown from Bremen in Germany to compete for the Geisler Cup, which he won. M. Brindejone had been disqualified from competing, by an illegal meeting of the committee of the Royal Aero Club, for flying over London. Some six months later this decision was declared void by the stewards of the Royal Aero Club.

On the 13th the Wight seaplane, with double-camber wings, made its first appearance, and was unfortunately damaged.

On the 21st a very fine flight was made by Capt. Longcroft



IS



THE BEST DOPE

A FEW GUARANTEES OF ITS SUPERIORITY:

- ¶ A. This Dope is the result of scientific research, and the product of one of the world's foremost chemical laboratories.
- ¶ B. This Dope is exclusively used by one of the world's largest Aeroplane factories, the German Aircraft Works of Leipzig, whose Military "ARROW" Biplane is exciting such enormous interest just now at Brooklands.
- ¶ C. This Dope is universally used by the German Flying Corps and all important Aircraft Works.

The Sole Concessions might be granted to a reliable firm of first class standing.



For further particulars and samples please write to—

**"T.U.B.," 41, Christchurch Road,
Streatham Hill, London, S.W.**



on a B.E. biplane, who left Farnborough at 5.25 a.m., stopped at Grimsby and Ellington, and arrived at Montrose at 4.20 p.m.

On the 27th Mr. Desmond Arthur was killed at Montrose through the collapse of a wing of a B.E. biplane which was supposed to have been overhauled and examined at the Royal Aircraft Factory a few days earlier.

King's Birthday Honours were accorded to Temporary Major Sykes, Commander R.F.C. (to be brevet Lieut.-Col.), Captains Brooke-Popham and Burke (to be brevet Majors), and Lieuts. Barrington-Kennett and Reynolds (to be brevet Majors on attaining rank of captain). These were the first special honours to military aviators. Mr. Mervyn O'Gorman, Superintendent Royal Aircraft Factory, was created a C.B.

On the 31st Mr. Hawker on one of the new Sopwith biplanes, put the British height record up to 11,300 feet.

During the month H.M.S. "Hermes," Capt. G. W. Vivian, R.N., took over the aeroplanes and pilots of the Navy, as mother ship.

Abroad the chief performance of note was the Prince Henry Circuit in Germany, in which eighteen aviators started and eleven finished. On the last day of the competition when special military tests were added locally, twenty-two aviators competed, thus showing the development of flying in Germany: an interesting comparison when one remembers that there was only one starter for the "Seaplane Circuit" of Britain three months later. On the 27th M. Perreyon on his Blériot flew from Turin to Rome and back, 750 miles, in a day with a passenger. Germany bought an Avro biplane, which became the first German naval seaplane to fly to Heligoland.

June.

There were many exhibition flights and contests in various parts of the country, but the most notable performances were Mr. Hawker's, who put up various British height records on a Sopwith biplane.

On the 5th there was a debate in the House of Commons on the Royal Flying Corps, when Mr. Joynson-Hicks challenged Colonel Seely to produce ninety aeroplanes fit for use out of the 120 he claimed to have. The *AEROPLANE* stated at the same time that not more than forty-nine serviceable aeroplanes were in the possession of the Army, and a detailed list of the machines was given.

On the 12th the War Office and the Admiralty together announced that a competition for British-built aero engines would commence on February, 1914. The announcement of such a competition had been promised by Colonel Seely in March, so that there had been an unnecessary delay of three months in announcing conditions.

On the 12th the French-built Astra Torres dirigible began her trials at Farnborough for the Navy, and ultimately, after slight alterations, proved herself to be the fastest airship in the world.

On the 18th Mr. Hawker put the British height record with two passengers up to 11,200 feet, and then went up with one passenger to 13,000 feet.

On the 30th the German-built Parseval airship passed her tests for the Navy, and so we came into possession of two really practicable airships.

On the 27th Mr. Grahame-White on a Morane-Saulnier waterplane, flew from Paris to London, this being the first waterplane trip between the two capitals.

Abroad M. Perreyon, with Madame de Plagino as passenger, beat the world's height record with one passenger by flying to 16,700 feet. On the 10th M. Brindejone des Moulinais on the Morane-Saulnier monoplane, 80 h.p. Gnome, flew from Paris to Warsaw, 990 miles, between 3.57 a.m. and 5.15 p.m. There he was delayed by bad weather and continued to St. Petersburg on the 17th, whence in due course he flew to Stockholm, Copenhagen, the Hague, Brussels, and Paris, thus completing the circuit of the capitals of Northern Europe.

On the 7th a half squadron (three machines) of Russian Nieuports, flew from Sebastopol to Kief in the day, 600 miles.

The Zeppelin "Sachsen" voyaged on the 9th from Baden to Vienna.

July.

The first event of importance was the winning of the Mortimer-Singer prize by the Sopwith "bat-boat," which, piloted by Mr. Hawker, passed the various tests for an all-British machine starting from the land, alighting on the water, and starting from the water and alighting on land five times, this being the first amphibious aeroplane built in Great Britain. A Green engine of 100 h.p. was used.

Squadron 2, R.F.C., were employed on manoeuvres in Ayrshire, the first military use of aeroplanes in Scotland.

Between the 20th and 28th, a number of seaplanes were used in the British Naval Manœuvres for the first time in history, and did a great deal of very useful work.

On the 27th Mr. Hawker took up three passengers with him to 8,400 feet, this being a world's record. (See frontispiece).

On the 30th came the exposure of Colonel Seely in the House of Commons by Mr. G. J. Sandys, M.P. for Wells, Somerset, and in the Press by Mr. Joynson-Hicks, M.P. for Twickenham, Middlesex. The 120 efficient aeroplanes claimed by the Secretary of State for War dwindled down to fifty-three claimed by the War Office, and forty-three actually fit for use, so that the forty-nine admitted early by *THE AEROPLANE* had been reduced in number in the meantime.

Abroad the chief event of the month was a flight by Deroye from one end of Italy to the other between 4.23 a.m. and 12.7 p.m., and on the 25th Cevasco with three passengers flew from Milan to Turin. For the first time in history an aeroplane started from and alighted on a wire rope. The tests were carried out on the 20th by M. Pégoud on a Blériot monoplane at Buc.

A race of 1,000 miles round the American Great Lakes was won by Beckwith Havens on a Curtiss flying boat.

August.

The month opened with a big meeting at Hendon, and exhibitions by Messrs. Raynham, Pickles, and Whitehouse at Burton, and Hamel at Worcester.

On the 7th Mr. S. F. Cody and Mr. Evans were killed by the collapse of the Cody biplane on which they were flying at Farnborough.

About the 10th of the month the existence and possibility of inherently stable aeroplanes was discovered by the daily Press through the Dunne biplane's flight to France, piloted by Captain Félix of the French Army.

On the 16th Mr. Hawker on a Sopwith biplane (100 h.p. Gnome) made his first attempt to win the "Daily Mail's" £5,000 prize for a flight round Britain on an all-British seaplane. (See frontispiece.) He gave up at Yarmouth. He tried again on the 25th, and fell into the sea, after flying 1,000 miles, at Skerries, near Dublin.

About the same date the Grahame-White five-seater "aero-char-a-bancs" appeared. The Wight seaplane began to fly really well a little later in the month.

On the 19th Capt. Longcroft, R.F.C., with Lieut.-Col. Sykes as passenger, flew from Farnborough to Alnmouth, 287 miles non-stop, between 9.40 a.m. and 3.10 p.m.—a world's record for a non-stop flight with a passenger.

On the 30th No. 2 Squadron, R.F.C., commenced to fly from Montrose to Limerick.

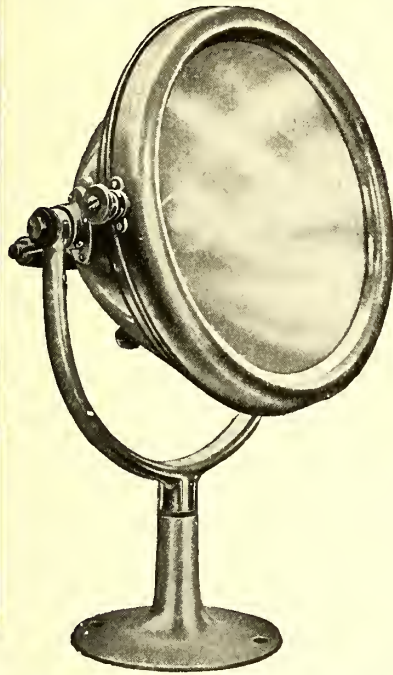
Abroad M. Deperdussin was arrested for colossal frauds. On the 11th M. Séguin on a Henri Farman flew from Biarritz to Bremen, 840 miles, between 4.37 a.m. and 6.55 p.m. On the 27th the Deauville meeting began, and showed that French seaplanes were inferior to English, and had made no advance since the Monaco meeting. Capt. Félix flew the Dunne machine at Deauville and created something of a sensation among French designers. M. Letort flew from Paris to Dantzig, 857 miles, in the day, on a Deperdussin monoplane.

September.

On the 1st, Capt. Becke, No. 2 Squadron, R.F.C., flew from Montrose to Limerick in the day, 375 miles, including crossing from Stranraer to Larne.

On the 9th M. Louis Noel on the Grahame-White five-seater, flew for 10 mins. 7 sec. carrying seven passengers.

On the 14th Herren Friedrich and Etrich arrived from

ELECTRIC LIGHT**FOR
WATER-
PLANES**

This is part of
our Standard
Lighting Set,
and we shall
appreciate en-
quiries for any
class of Electric
Lighting for
Cars, Launches
or Flying
Machines.

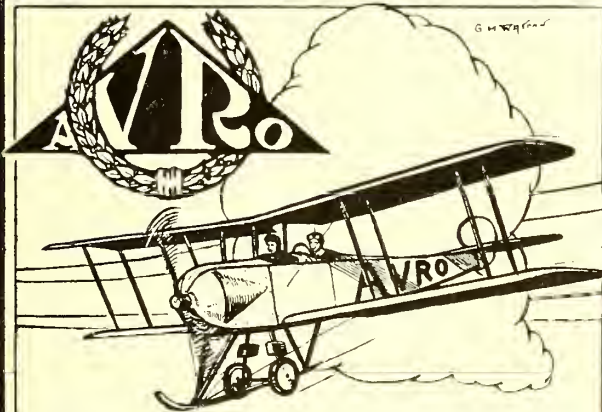
RICHARD PAPE, Ltd.,
BELVEDERE, KENT.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
is thoroughly equipped and
Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.



ONE of THE FINEST AEROPLANES
ever designed, if not indeed

THE FINEST OF ALL
vide DAILY TELEGRAPH

AVRO

NOTHING BETTER

A. V. ROE & CO. LTD.

Contractors to the Admiralty, War
Office and Foreign Governments,

Clifton St., Miles Platting, Manchester.

Telegrams—Triplane.

Telephone—337 Failsworth.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS

for the building of

HENRY & MAURICE FARMAN

Aeroplanes

AND

Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground :
HENDON.

Offices :
47, VICTORIA STREET, S.W.

Germany at Hendon, this being the first German aeroplane to fly to England.

On the 20th the Aerial Derby round London was won by Mr. Hamel on a tiny racing Morane, Mr. Barnwell, on the big Martinsyde monoplane, running him very close for second place, and doing a very fine performance. (See frontispiece.)

M. Pégoud looped the loop for the first time in England on the 25th, at Brooklands. (See frontispiece.) Mr. Grahame-White, accompanied by Mr. and Mrs. Gates, Mr. Carr, Mr. North, and Mr. Chapman, flew over on the five-seater from Hendon on the 26th to see him, and flew back later. About five other pilots and three or four passengers made the same trip.

On the 25th the Royal Flying Corps succeeded in putting forty-five aeroplanes and two dirigibles (alleged) in the field for the Army Exercise, and all did very good work, showing the personnel of the R.F.C. to be very highly efficient. About 10,000 miles were flown without serious accident.

Mr. Churchill, First Lord of the Admiralty, made many flights, his first being with Lieut. Spenser Grey, R.N., on a Sopwith.

Abroad, M. Pégoud flew upside down for the first time deliberately, on the 14th, and he looped the loop on the 20th. It is believed, however, that M. Chanteloup on a Caudron "looped" about a week earlier at Douai. The French dirigible "Fleurus" journeyed from Pau to Paris on the 25th, doing 900 kms. (550 miles) between 2.45 a.m. and 6.15 p.m. On the 29th MM. Prévost, Gilbert, and Emile Védrières, in the Gordon-Bennett race, all covered over 200 kms. (125 miles) in the hour, and M. Prévost won. All beat two miles a minute all through.

October.

On the 2nd an inter-county race between aeroplanes built in Yorkshire and Lancashire took place, Mr. Raynham representing Lancashire and Mr. Blackburn Yorkshire, the course being Leeds to York, Doncaster, Sheffield and Barnsley. Mr. Raynham lost his way.

On the same day M. Louis Noel, with nine passengers, in the Grahame-White "char-à-bancs" (120 h.p. Austro-Daimler), flew for 19 mins. 47 secs. at Hendon, creating a world's record.

On the 3rd, Major Merrick, D.S.O., was killed while flying a Short propeller biplane at the Central Flying School, through falling onto the control wheel in descending, and then falling out of the machine.

Mr. Cheeseman, formerly of Hendon, was killed on the 12th at Mr. Compton-Paterson's school at Kimberley, South Africa, while flying a Paterson biplane with a pupil. It is reported that the machine was caught by a gust and landed badly, Mr. Cheeseman being thrown out and killed, though the pupil was not seriously hurt.

On the 18th, Major Maitland, R.F.C., descended by parachute from a dirigible balloon, for the first time on record.

During the month it became known that the Navy were to take over the four experimental, and somewhat defective, airships built by the Royal Aircraft Factory for the Army. No great enthusiasm was displayed.

Abroad the German Naval Zeppelin L. II was destroyed at Johannisthal by fire in the air, causing 25 deaths. On the 13th, M. Séguin flew from Paris to Bordeaux and back without a stop between 6.2 a.m. and 7.7 p.m., the distance being 646 miles. On the 14th, Herr Stöfler started by moonlight at 1 a.m. and flew, including stops, until the following midnight, covering 1,350 miles, a world's record for human transport in the day. Numerous other German pilots made flights exceeding 500 miles in the day, in competition for the German National Aviation Fund prizes. On the 16th, Major Piazza, of the Italian Army, flew from Mirafiori and landed on the top of Mont Cenis. On the 31st, M. Gilbert flew 650 miles straight across country from Paris in 5 hours 14 minutes, averaging over two miles a minute for the first time across country for a long distance.

November.

On the 5th, Mr. Reginald Carr, on the Grahame-White five-seater (100-h.p. Green engine) won the Michelin Cup by flying 360 miles in the day.

On the 8th, the first race (a handicap) from Hendon to

Brighton and back took place and was won by M. Verrier on a Maurice Farman, Mr. Hamel, on his Morane, doing the fastest time.

On the 18th, Mr. Hucks became the first Englishman to loop the loop, doing so in France on a specially built Blériot, and on the 27th he repeated the performance at Hendon. Previously Mr. Temple, on the 24th, had succeeded in passing the perpendicular but he did not loop the loop.

On the 22nd, Capt. Longcroft, on a "B.E." type biplane (70-h.p. Renault), built by the British and Colonial Aeroplane Co., Ltd.—"The Bristol Co."—flew without a stop from Montrose to Portsmouth and back to Farnborough—a British record. (See frontispiece.)

On the 29th, Mr. Winston Churchill, flying with the late Captain Lushington, R.M.A., took control of the aeroplane himself during the greater part of an hour's flight, thus being the first Cabinet Minister of any nation to pilot an aeroplane.

On the 29th, during one of Mr. Hucks' looping the loop exhibitions at Hendon, Mr. Hamel also succeeded in looping the loop on his Morane, and thus became the second British pilot to do so, and the first to do it on a standard type machine.

On the 29th also a new Sopwith biplane (80-h.p. Gnome) made its appearance, which attained an astonishing range of speed, doing 92 m.p.h. at its fastest and 36 at its slowest, thus proving itself the most efficient machine in existence at the moment.

About this date, Mr. Frank McClean, on a 5-seater Short seaplane (160-h.p. Gnome), flew with Commander Samson, R.N., Capt. Courtney, R.M.L.I., Mr. Alec Ogilvie, and Mr. Horace Short, all as passengers at once, the machine showing very high efficiency. It was built for a trip up the Nile to Khartoum. (See frontispiece.)

During the month exhibitions were given by Mr. Curtiss, Mr. Cooper, and Lieut. Porte, R.N., in a Curtiss flying boat (100-h.p. Curtiss), owned by Capt. E. C. Bass, and gave a generally favourable impression.

Abroad, Herren Carganico and Friedeberg made a 2,000-mile tour of Germany in eight days, using a Mercedes motor. Various pilots in France looped the loop, etc., including M. Chevillard, Garros, Hanouille, Bill, Gougenheim, etc.

December.

On the 5th, the Fifth International Aircraft Exhibition opened in Paris and disclosed for the first time that British aeroplane constructors are capable of competing on equal terms with the French, who show but little advance in the last year.

On the 2nd, Captain Wildman-Lushington, R.M.A., was killed while flying a Maurice Farman biplane at Eastchurch, through failing to correct a banked turn when landing. His passenger, Captain Fawcett, R.M.L.I., escaped with a broken collar-bone.

Great satisfaction was felt on all sides at the appointment early in the month of Major J. D. B. Fulton, R.F.A., as Chief Inspector of Aeroplanes and Engines, with Captain Bagnall-Wild, R.E., as Assistant Inspector of Engines, and Mr. Geoffrey de Havilland as Assistant Inspector of Aeroplanes. The appointment of such inspectors was recommended by the Monoplane Committee exactly a year before.

About the 4th, trials of aircraft-destroying guns were carried out with some success at the Needles.

A new small air-ship (60-h.p. E.N.V.), the first built in London, was brought out at Hendon by Mr. E. T. Willows.

A real "flying club" was formed by the Governors of the Northampton Polytechnic Institute, this being the first society of a co-operative nature in which the members are to build and fly aeroplanes.

The "Hermes"—mother-ship for the aeroplanes of the Naval Air Service—was paid off on the 23rd, and the administrative officers were located at Sheerness.

About the 20th, the new Avro biplane (80-h.p. Gnome), piloted by Mr. Raynham, put up a speed range record by flying at 30 m.p.h. and 83 m.p.h.

Great renewal of activity began at Brooklands, the Vickers all-steel gun-carrying biplane, the D.F.W. (a German tractor biplane), the Martinsyde monoplane, various Sopwiths and



ACCLES & POLLOCK, LIMITED

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
ONE QUALITY—THE BEST.

OLD BURY, BIRMINGHAM. Send for 25" x 20" Chart of Full-Size Sections.—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

ANZANI AERO ENGINES

1913 MODELS!

25 H.P. 3-CYL. "FAN."	70-80 H.P. 10-CYL.
25 H.P. 3-CYL. "Y."	80-90 H.P. 10-CYL.
30 H.P. 3-CYL. "Y."	100 H.P. 10-CYL.
40-45 H.P. 6-CYL.	125 H.P. 10-CYL.
50-60 H.P. 6-CYL.	200 H.P. 20-CYL.

All Enquiries to be sent to

THE BRITISH ANZANI ENGINE CO. LTD.

30, Regent St., Piccadilly, S.W.

'Phone: 280 Gerrard.

Wire: "Anzani, Piccy," London.

CELLON

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

IMMEDIATE DELIVERY OF THE BEST DOPE.

Reg. Offices:—

17, OLD BROAD STREET, LONDON, E.C.

Telegrams: "AJAWB, LONDON."

Telephone: 5359 London Wall.

Factory:—

**STIRLING CHEMICAL WORKS,
CANNING ROAD, STRATFORD, E.**

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.
NEW WORKS will open at BROOKLANDS FLYING GROUNDS on JAN. 1, 1914.

Full Particulars from—

BLERIOT-AERONAUTICS, Belfast Chambers, 156, REGENT STREET, LONDON, W.

SPECIAL INCLUSIVE TERMS FOR TUITION.

Telegrams—

"BLERIOPLAN, LONDON."

NORBERT CHEREAU, General Manager.

Telephone—

REGENT 3653.

THE BOOK OF THE DAVISON INVENTIONS

Highly Interesting to all engaged in Aeroplane Manufacture. Special Aeroplane Petrol Tanks and devices to secure improved efficiency in the use of Petrol. Write for a copy and my offers in Acetylene Welding for making light frames and chassis of unprecedented strength without lugs, effecting great saving of time and money, with improved reliability.

A. G. DAVISON, 163 ARLINGTON ROAD, CAMDEN TOWN, LONDON, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Avros, and the Vickers and Bristol school machines making excellent displays (see frontispiece). The Blériot Co. also opened works there.

On Boxing Day, M. Chanteloup (Caudron biplane) introduced various new aerial tricks at Hendon. Mr. Hamel (Morane) "looped" again. Mr. Hucks introduced looping to the provinces at Shoreham and Liverpool before and after Christmas respectively.

Abroad, MM. Bonnier (Nieuport) and Védérines (Blériot) flew across Europe from Paris, en route for Cairo. M. Hélén was declared winner of the Michelin Cup. M. Legagneux raised the height record to 20,300 ft. on a Nieuport, 80 h.p. le Rhone, at Fréjus. Mr. Orville Wright and Mr. Glenn Curtiss, the American pioneers, were each experimenting with automatic controls for stabilising. Attention of designers generally began to turn towards automatic or inherent stability as the next stage in the development of aeroplanes.—C. G. G.

In Memoriam.

At the opening of a new year it seems well to recall the names of those British fliers who have died in this country and abroad, and of those foreigners who have died here, in making the history of aviation. Some have died through their own mistakes, some through the criminal foolishness of others, some in sheer accidents, but all had in their hearts the will to help the cause of flying, and as such their names deserve to be held in honour.

July 12th, 1910	..	The Hon. C. S. Rolls	..	..	..	Wright Biplane	..	..	..	Bournemouth
Dec. 22nd, 1910	..	Cecil Grace	..	..	..	Short-Grace Biplane	..	..	..	Lost in North Sea
May 25th, 1911	..	B. G. Benson	..	..	..	Valkyrie Monoplane	..	..	..	Hendon
May 27th, 1911	..	W. Wladimir Smith	..	..	..	Sommer Biplane	..	..	..	St. Petersburg
Aug. 1st, 1911	..	G. F. G. Napier	..	..	..	Bristol Biplane..	..	..	..	Brooklands
Aug. 10th, 1911	..	T. J. Ridge	..	..	..	Army Aircraft Factory's "Canard" Biplane	..	..	..	Farnborough
Sept. 17th, 1911	..	Lt. R. A. Cammell, R.E.	..	..	..	Valkyrie Monoplane	..	..	..	Hendon
Dec. 6th, 1911	..	Huhert Oxley, and Robert Weiss (Swiss passenger)	..	..	..	Blackburn Monoplane	..	..	..	Filey
Feb. 17th, 1912	..	Douglas Graham Gilmour	..	..	..	Martin-Handasyde Monoplane	..	..	..	Richmond, Surrey
April 18th, 1912	..	Damer L. Allen	..	..	..	Blériot Monoplane	..	..	..	Lost in Irish Sea
May 13th, 1912	..	E. V. B. Fisher, and J. Mason (American passenger)	..	..	..	Flanders Monoplane	..	..	..	Brooklands
July 5th, 1912	..	Capt. E. B. Loraine, and Staff-Sergt. R. H. V. Wilson (passenger)	..	..	..	Nieuport Monoplane	..	..	..	Stonebenge
Aug. 3rd, 1912	..	C. Lindsay Campbell (Australian)	..	..	..	Bristol Monoplane	..	..	..	Brooklands
Aug. 13th, 1912	..	R. C. Fenwick	..	..	..	Mersey Monoplane	..	..	..	Larkhill
Sept. 6th, 1912	..	Capt. P. Hamilton, and Lt. A. Wyness-Stuart, R.A. (passenger)	..	..	..	Deperdussin Monoplane	..	..	..	Graveley, near Hitchin
Sept. 10th, 1912	..	Lt. E. Hotchkiss, and Lt. C. A. Bettington, R.A. (passenger)	..	..	..	Bristol Monoplane	..	..	..	Wolvercote, near Oxford
Sept. 21st, 1912	..	H. J. D. Astley	..	..	..	Blériot Monoplane	..	..	..	Belfast
Sept. 28th, 1912	..	H. L. Longstaffe	..	..	..	Farman Biplane	..	..	..	Long Island, U.S.A.
Dec. 15th, 1912	..	Lt. Wilfred Parke, R.N., and A. Hardwick (passenger)	..	..	..	Handley-Page Monoplane	..	..	..	Wemhley Golf Links
Dec. 24th, 1912	..	Edward Peire	..	..	..	Martin-Handasyde Monoplane	..	..	..	Marske-by-the-Sea, Yorks
Jan. 13th, 1913	..	L. F. Macdonald, and H. England (passenger)	..	..	..	Vickers Biplane	..	..	..	Drowned in Thames off Purfleet, Kent
Mar. 5th, 1913	..	G. W. England	..	..	..	Bristol Monoplane	..	..	..	Salisbury Plain
April 21st, 1913	..	Paymaster E. R. Berne, R.N.	..	..	..	Cody Biplane	..	..	..	Eastchurch (hit by pr'plr)
April 28th, 1913	..	Lt. L. C. Rogers-Harrison	..	..	..	"B.E." (205) Biplane..	..	..	..	Farnborough
May 27th, 1913	..	Lt. Desmond L. Arthur	..	..	..	Martin-Handasyde Monoplane	..	..	..	Brooklands
June 13th, 1913	..	Lt. J. R. B. Kennedy, R.N. (passenger with C. Gordon Bell)	..	..	..	Avro Biplane	..	..	..	Burnt, though unhurt by fall, at Shoreham
June 29th, 1913	..	R. N. Wight	..	..	..	Bristol Monoplane	..	..	..	Larkhill
July 17th, 1913	..	Major A. W. Hewetson, R.A.	..	..	..	Cody Biplane	..	..	..	Salisbury Plain
Aug. 7th, 1913	..	Samuel Franklin Cody, and W. H. B. Evans (passenger)	..	..	..	Short Biplane	..	..	..	Upavon, Wilts
Oct. 3rd, 1913	..	Major G. C. Merrick, D.S.O.	..	..	..	Paterson Biplane	..	..	..	Kimherley, South Africa
Oct. 12th, 1913	..	E. W. Cheeseman	..	..	..	Maurice Farman Biplane	..	..	..	Eastchurch
Dec. 4th, 1913	..	Capt. G. V. Wildman-Lushington, R.M.A.	..	..	..		

The Next Olympia Show.

The support already given to each section of the forthcoming Aero, Marine, and Stationary Engine Exhibition, to be held at Olympia next March, ensures the holding of a successful show, it is therefore advisable for firms interested not to lose time in making application for the remaining spaces.

The Edinburgh Aeronautical Society.

Colonel Massy, C.B., of the Aerial League, is giving two lantern lectures on "The Development of National Aviation" in the Oak Hall, Edinburgh Café, Princes Street, on Thursday, January 8th, at 3 p.m., and 8 p.m. General H. T. Arbuthnot,

C.B., R.A., in the chair. Admission is free, but there are a few reserved seats, price 1s., to be obtained at the Café.

Flying Boats on Southampton Water.

During the week before Christmas, Mr. Howard Pixton flew the Sopwith bat-boat which won the Mortimer-Singer prize, now fitted with a 120 h.p. Austro-Daimler engine, from Cowes to Calshot, where it will be taken over by the Navy after passing through the necessary tests. One gathers that the tests have been delayed owing to engine trouble.

The Curtiss flying boat has been undergoing an overhaul at the hands of the Hamble River, Luke and Co., Ltd., and was out again on Friday and Saturday before Christmas, piloted by Lieut. Porte, R.N., and Capt. Bass.

The Royal Flying Corps in 1913.

BY W. E. de B. WHITTAKER.

This week ends the first calendar year throughout which the Royal Flying Corps has been in active existence. It has begun to possess a history, and is progressing towards the creating of a tradition and a true esprit de corps. The haphazard in its formation is disappearing, and there is a prospect of a settled state of affairs some time in the immediate future.

Its history during the past twelve months has been one of organisation, training, and expansion. No war has been granted to the nation that the newly created corps might have experience of the grim reality. Continued peace has disturbed the land, and there has been no opportunity of evading all or any of the criticisms of the experts and their friends. None can say that the experience has been pleasant for those who control the immediate destinies of the R.F.C.: Each critic has had his own view of how matters should be arranged, and each of them has suggested sharp practice on somebody's part. In the face of so much division of opinion, it is highly creditable to those in executive authority that so much of really good work has been done in the time.

The Royal Flying Corps is still officially regarded as one undivided body drawn from both of the great Services. In truth, the original plan is dying daily. The Navy speaks of the Naval Air Service on most occasions, and the "Naval Wing" is entirely managed from the Air Department at the Admiralty. The majority of naval pilots are trained at the Naval Flying School at Eastchurch, and only a few naval men are sent to the Central Flying School, built out of joint votes and staffed equally from both services.

After considerable delay and almost inconceivable confusion, the Army Council permitted the creation at the War Office of the Department of Military Aeronautics, similar in formation to the Air Department at the Admiralty. Brigadier-General Henderson, C.B., D.S.O., a Staff officer of experience, was appointed Director of Military Aeronautics. So far, no officer

has been appointed to the supreme command of the entire R.F.C. as was forecasted in the original scheme, nor is it likely under the existing circumstances that such an appointment will ever be made.

On occasion during the year there has been concerted action by units of both wings, as in the Army manœuvres in September and in certain gunnery experiments. Apart from a few instances of this type, the Corps has had little of the unity so beautifully sketched in the original scheme.

The first annual dinner of the Corps was held at the Café Royal on June 6th, 1913.

It is perhaps advisable to treat of the two wings of the R.F.C. separately—as they are in fact.

Naval Wing.

In the Naval Estimates presented to the House of Commons by the First Lord in March, a sum of £321,000 was set aside in the various Votes as for Aeronautics. Of this the major part, after necessary recurring charges had been met, was allotted for the building and housing of airships. The estimated expenditure was very much less than was afterwards found to be necessary, but it is understood that the Admiralty have found no difficulty in obtaining such money as was desired. It is obvious that it is considerably cheaper to create and maintain a fleet of aeroplanes than it is to fit out a satisfactory force of dirigible balloons, hence the seeming inequality is not so great as it appears. So much, too, of the expenditure on airships for some time to come is non-recurring, and therefore cannot be properly put into the balance. Of course, this is also true in regard to aeroplanes, but to an infinitely less degree.

It was recognised in the earliest stages of naval aviation that it would be necessary either to build or adapt a ship that it might act as a parent ship for aeroplanes. At one time there was an idea that it would be advisable to build a special ship with flush decks and propelled by oil engines. On the score



The D.F.W. Biplane at Brooklands, Pilot Herr Roempler. Mr. Cecil Kny (manager) on left, and the German machine-crew on right.

of expense and of the primitive condition of knowledge and experience, this project was set aside for the time, and on May 6th H.M.S. "Hermes," a protected cruiser of 5,600 tons displacement, with a designed speed of 20.9 knots, was commissioned to act as aviation mother-ship. After that date the entire personnel of the Naval Air Service was transferred to the books of the "Hermes," and Captain G. W. Vivian was appointed to the command. About a month later T.B.D. 23 was attached for service with the Naval Wing. The "Hermes" continued in commission until shortly before Christmas, when it was paid off and again retired into the peaceful life of the dockyard, a life for which it was eminently suitable. No announcement has been made as yet as to the future plans of the Admiralty in regard to aviation ships.

During the first six months of the year a series of air stations were equipped and opened at various points on the coast. Calshot, the Isle of Grain, Felixstowe, Yarmouth, Firth of Forth, and Cromarty all became homes of the official aeroplanes and their keepers. Hydro-aeroplanes and those built for land work were attached to each station. With the exception of Calshot, all these stations were used in the naval manœuvres later in the year.

The Right Hon. Winston Spenser Churchill, First Lord of the Admiralty, has proved in a high degree the "fairy godfather" of naval aviation. He has throughout taken a deep personal interest—too deep an interest say some—in the doings of the Naval Air Service. The Navy hardly possesses a single type of aeroplane on which he has not made a flight as a passenger. Late in November, while on a dual-control biplane with the late Captain Wildman-Lushington, R.M.A., he piloted the machine personally for three-quarters of an hour. It is unwise and unnecessary that a Minister of State should enter too closely into the details of the service which he controls, for fear he might lose a true sense of proportion, but it is, nevertheless, good for aviation.

The Naval Air Service has purchased a great number of aeroplanes of various types during the year, that experience might be gained and the best machines discovered. A commendable practice has been made of purchasing British machines in so far as it is possible. One understands that in the matter of hydro-aeroplanes there are several types produced in this country which will stand very favourable comparison with those built abroad.

Much has been done to secure a fleet of airships.

(To be continued.)

A Mishap at Bishop's Stortford.

On Christmas Day, Mr. Brock, accompanied by Mr. Price, of the "Daily Mirror," representing Father Christmas, was giving a demonstration at Bishop's Stortford. After a good flight he was returning to the landing field, and had judged his height and speed so as to land diagonally across the ground. As so often happens at provincial demonstrations, the usual cheerful fools of spectators got in the way and Mr. Brock was compelled to turn along the side of the ground. The distance was too short for him to pull up, so he switched on his engine and jumped the hedge at the far side. Unfortunately the engine did not pick up at once, and in banking to avoid a tree at the same moment that he was pulling the machine over the hedge, the tail dropped and caught a high bush which broke the end of the fuselage and removed a great portion of the elevator. The tail immediately dropped, but, fortunately, the engine still refused to pick up its power, so that instead of shooting up into the air and falling over backwards, the machine stalled and came down comparatively

Before the end of 1912 an Astra-Torres and a Parseval dirigible had been ordered abroad. The former of these went through part of its reception trials in June. Unfortunately a slight mishap occurred which necessitated extensive alterations, and the ship was not finally accepted by the Admiralty until September 27. The Parseval, on the other hand, went through its trials and was taken over in July. In November it was announced that the Navy would take over from the Army the little dirigibles which had been for so long a picturesque feature of military life. Orders have also been given to Vickers, Ltd., for one rigid and three non-rigids, and to Armstrong-Whitworths for one rigid and three non-rigids.

In August the Director of the Air Department and one of his officers made flights at Turin in the Forlanini semi-rigid airship. So impressed were they, so it is understood, that it is likely that the British Navy will possess one shortly.

Provision was made in the Estimates for the erection of a large dirigible shed capable of housing two balloons, on the Medway, at Hoo, below Rochester. This shed was bought complete in Germany, shipped in parts to England, and re-built here.

The naval aviators have during the year carried out a great amount of flying of a very high order, singularly free from accidents to pilots or passengers. Though no flights of great length have been made, a number of cross-country voyages have been carried out with precision and without delay.

During the naval manœuvres which took place towards the end of July, aeroplanes were employed effectively for the first time. The "Hermes" had a launching platform fitted, which was used once or twice. By far the greater amount of flying was done from the shore stations. Reports were made by wireless with signal success.

Though a large number of aeroplanes belonging to the Naval Air Service have been destroyed during the year, only three officer-pilots have been killed in the same space of time, and only one of these on flying duty in a service machine.

On April 21st, Paymaster E. R. Berne, R.N., was killed by a propeller. On Friday, June 13th, Lieut. J. R. B. Kennedy, R.N., was killed whilst flying as passenger on a non-service aeroplane piloted by a civilian aviator. On December 2nd, Captain G. V. Wildman-Lushington, R.M.A., was killed at Eastchurch. This officer was the first in the Naval Air Service to be killed whilst flying on duty.

gently, damaging itself considerably, but not hurting either of the occupants.

Mr. Hucks in the Provinces.

There was much disappointment in the Liverpool district when the perfectly atrocious weather during the Christmas holidays prevented Mr. Hucks from carrying out his programme for Boxing Day at the Aintree Racecourse. Being so near the coast he got the full force of an Atlantic gale, and it was a wonder that the large number of spectators saw any flying at all. Despite the wind which threatened to blow down the marquee holding the machine, Mr. Hucks went out in the morning and, blown about like a feather, climbed to 1,000 feet, where he made a hair-raising loop. The applause that greeted him when he landed must have been very acceptable to the aviator, for it showed the spectators understood the extraordinary conditions. During the afternoon the wind increased and only one flight could be made.

On the Saturday and Sunday of the previous week Mr. Hucks had given a display at Shoreham amid much enthusiasm.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," December 23rd.

Admiralty, December 19th. Royal Naval Reserve:—

The following gentleman has been appointed a Sub-Lieutenant:—H. R. Busted (October 4th).

War Office, December 23rd. Regular Forces.

Establishments. Royal Flying Corps.—Inspection Department.—Maj. J. D. B. Fulton, R.A., from an Instructor at the Central Flying School, to be Chief Inspector (December 17th).

Admiralty appointment, December 22nd:—

Captain.—G. W. Vivian, to the "Pembroke," additional, for the Sirius, to date December 24th, and on commissioning, to date January 27th, 1914.

Admiralty appointments, December 23rd:—

Lieutenant.—B. D. Ash, to the "Pembroke," to date December 23rd, and additional, for course of instruction at the Central Flying School, to date January 27th.

Sub-Lieutenants.—Joseph R. W. Smith-Pigott to the Pembroke, additional, December 20th, and to the Pembroke, additional, for course of instruction at the Central Flying School, to date January 27th.

Fleet Paymaster F. Lenn, to the "Pembroke," for headquarters of Naval Wing of Royal Flying Corps, to date December 24th.

Assistant Paymasters.—A. A. Robinson and L. D. McKean, to the "Pembroke," additional, for headquarters of Naval Wing of Royal Flying Corps, to date December 24th.

Admiralty appointments, December 27th:—

Commander.—F. R. Scarlett, to the "Pembroke," additional, for temporary duty as Inspecting Captain of Air Craft, to date December 23rd.

Sub-Lieutenant.—F. E. T. Hewlett, to the "Pembroke," additional, for Grain Island Station, temporary, as Flying Officer, to date December 23rd.

Another course of training begins at the Central Flying School on January 27th. One understands that this course is confined to officers of the Army or Navy.

NAVAL.

On January 1st various alterations will take place in the Naval Air Service. Several officers holding temporary appointments will be permanently appointed to various stations. Lieuts. F. G. Brodribb and A. B. Gaskell, R.N., temporarily appointed to the Isle of Grain, have been appointed to that station as flying officers. Lieut. W. G. Sitwell, R.N., leaves Grain for Yarmouth, and Captain H. Fawcett, R.M.L.I., leaves Yarmouth for the Fifth of Forth Station. Lieut. A. J. Miley, R.N., leaves Isle of Grain to join (temporarily) Calshot as flying officer; and Lieut. E. Osmond, R.N., temporarily at Grain, is appointed to the Naval Flying School, Eastchurch, as flying officer. Sub-Lieut. I. G. Vaughan Fowler, R.N.R., temporarily at Grain, has been appointed flying officer at that station; and Sub-Lieut. R. H. Kershaw, R.N.R., goes to Yarmouth Station from Calshot. Sub-Lieuts. R. E. C. Peirse, T. A. Rainey, and D. G. Young, R.N.R., are appointed to Grain Station as flying officers.

The light cruiser "Hermes," Captain G. W. Vivian, which was only commissioned on May 7th, was paid off on December 23rd at Chatham Dockyard, and her crew disbanded. The headquarters of the Naval Wing of the Royal Flying Corps, which were at first on the torpedo school ship "Aetæon" and later on the "Hermes," have now been transferred to the Naval Sub-Depot at Sheerness, where offices have been arranged for the use of the Naval Air Service. The personnel of the Naval Wing will be borne on the books of the "Pembroke," depot ship at Chatham.

Captain G. W. Vivian, who has been with the Naval Air Service since February 18th, will leave the Naval Wing for a period, and take command of the light cruiser "Sirius," which is to be commissioned on January 27th to convey new crews to Muscat for the sloops "Alert" and "Odin." The "Hermes" is not expected to be again employed as a commissioned ship, a decision which will be appreciated by those who have served in her.

Christmas leave began on December 23rd at all the Naval Air Stations and comes to an end on January 5th.

At the Naval Flying School, Eastchurch, the only flight of the week was made by Sub-Lieut. Rainey, R.N.R., on Bristol tractor 43 80-h.p. Gnome, that being a long cross-country flight. Rain and leave prevented any further flying.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing). Diary of work for week ending December 20th, 1913:—

No. 1 Squadron.—Work was carried on as usual during the week.

No. 2 Squadron.—There was a certain amount of flying on "B.E.'s" and Maurice Farmans, but the week was chiefly devoted to moving aeroplane hangars to the new aerodrome and erecting them there. Capt. Dawes and a passenger flew from Montrose to Farnborough on a M. Farman, arriving on the 18th.

No. 3 Squadron.—The pilots of A, B, and C Flights were flying daily throughout the week—1,174 miles in all were flown. Lieut. Wadham went up to 9,500 ft. with a passenger on a Blériot on the 15th.

No. 4 Squadron.—B and C Flights were at work daily during the week carrying out reconnaissance and instructional flights.

No. 5 Squadron.—The "B.E.'s" and M. Farmans were flown daily. The detachment, which has been at Dover for several weeks, returned to Farnborough during the week.

Flying Dépôt.—Experimental work on various lines was continued. There was some flying on "B.E.'s" and M. Farmans.

The Royal Flying Corps will doubtless find much consolation for past troubles in a story which is now diligently circulating. This is to the effect that when Colonel Seely, full of a desire to emulate Mr. Churchill's feat of controlling an aeroplane himself, asked one in high authority in the Royal Flying Corps what pilot and machine would be recommended for the work, he was met by quite a civil, though obviously firm reply that no pilot or machine of the R.F.C. was available for the purpose, such machines as the R.F.C. possessed being for Service use only. Consequently he was compelled to fall back on his favourite establishment, the Royal Aircraft Factory. Knowing the feeling towards Colonel Seely in the R.F.C., one ventures to think that possibly his voyage was more comfortable for having a Factory employé as pilot.

The Army Council has authorised the issue of 10,000 rounds of ball ammunition to the squadrons of the Royal Flying Corps, stationed on Salisbury Plain, that a series of experiments with rifles and machine-guns in aeroplanes may be carried out during the coming year.

Further wireless experiments are to be made at Aldershot shortly.

Lieutenant Lord G. Wellesley, Grenadier Guards, has been selected for appointment to the Royal Flying Corps, on probation.

The story related in the daily press of the nest of mice discovered inside one of the planes of a biplane which had been flown between Montrose and Farnborough just before Christmas is apparently true in substance, only that the machine had, in fact, been flown from Farnborough to Montrose, and the mice were discovered almost immediately after its arrival at the latter place. One gathers that the machine, said to be a "B.E.," was a new one just handed over to the R.F.C. by the officials of the Royal Aircraft Factory, and was, therefore, naturally assumed to have been adequately inspected by them. The presence of the mice may presumably be ascribed to the machine being one of the many which had been for some time lying in the Factory waiting to be handed over to the R.F.C. and delayed for some reason which seemed good to the Factory officials, but is not apparent to those squadrons of the R.F.C. which are still in need of aeroplanes. The system of inspection at the R.A.F. which permits such an incident to be possible is evidently at fault. Attention has been drawn to it on previous occasions, notably in the case of the "B.E." which broke in the air and killed Mr. Desmond

Arthur. It was, indeed, time for the new Inspection Department entirely under military control to be formed.

Meantime, one may state without fear of contradiction that No. 2 Squadron will not adopt for arms, "Murrey, a mouse argent couchant regardant within a bordure ermine invected or rodentated." One might, however, suggest as a motto for the Royal Aircraft Factory a variant of the old tag, which in its new form may read: "Parturiunt naves, nascitur ridiculus mus."

There has been no flying at the Montrose Aerodrome during the past week. R.A.F. tents are still being erected on the links, and the work of building the new sheds is now going on rapidly. All but 35 of the squadron are on leave for Christmas, so that things have been very quiet.

FRANCE.

The expected statement in reply to the charges brought by M. Esnault-Pelterie has been delayed owing to the Minister of War, M. Noullens, being unable to break into the troublous debates at present occupying the attention of the Chamber of Deputies. To replace this apology as best as may be, General Bernard, Director of Military Aeronautics, published a sort of explanation in "Le Matin" on Christmas Day. He says definitely that the Ministry of War did not state the number of aeroplanes they intended to purchase during the year, and that no pledge as to number was given. Manufacturers have received orders for as many machines as they were able to deliver. A portion of the Budget money was used to augment the £600 per aeroplane subscribed by the National Fund. This communication is in exactly the terms that might have been expected. There is no question as to the existence of a very real scandal in the management of the National subscription.

The aerial navigation laws have been further extended. Until the present day, waterplanes have been allowed to roam where they will, untrammelled by any other rule than the mere difficulty of flying. Now certain prohibited areas have been ordained in France and seaplanes may only alight in properly designated harbours and navigable inland waters.

The two Voisin hydro-biplanes and the Nieuport hydro-monoplane, which were flown from Fréjus to Nice last week, were flown back to Fréjus on December 20th, escorted by Torpedo Boat 107.

In the promotions in the Legion of Honour, to be made on December 31st, two Crosses of Officers and ten of Chevaliers are to be granted to officers in the flying service.

On December 22nd, M. Rugère flew a Voisin biplane (80-h.p. Gnome) through its acceptance tests for delivery to the French Army. It climbed 3,300 ft. in 13 mins. 45 secs. This is stated to be the first time on which a military biplane fitted with an engine of 80 h.p. has risen to that height in less than 15 minutes. Perhaps the Avro's climb of 5,000 ft. in 9 mins. with pilot, passenger, and 3 hours' fuel, with an 80-h.p. Gnome, may interest the French Army.

FOREIGN NOTES.

France.

The event of the week in France has been most certainly the capture of the height record by M. Georges Legagneux. Flying a Nieuport monoplane (80-h.p. Gnome), he rose to a height of 20,300 feet at Fréjus. He was in the air one hour 49 minutes altogether. At 12,000 feet he was for five minutes practically stationary in his climb, but after that found no difficulty whatsoever.

Scientific looping experiments have been carried out during the past week by M. Olieslagers at Buc (Blériot), M. Poulét (Caudron) at Chateaufort, M. Garros (Morane-Saulnier) at Saint-Raphael, M. Chevillard at Lyon, M. Hanouille (Blériot) at Marseilles, M. Chanteloup (Caudron) at Nantes, M. Guillaux (Caudron) over the grands boulevards of Paris, and M. Pégoud (Blériot) at Buc.

The sympathy of all concerned with aviation will go to M. Maurice Farman, whose daughter Renée died shortly before Christmas. She was buried at Père Lachaise on December 21st. In the funeral cortège were many of those whose names are most celebrated in aeronautics.

M. Leo Van Steyn, the Dutch pilot, is still at Etampes, where he makes flights daily on a Henri Farman biplane

(80-h.p. Gnome). He has given flights, it would seem, to most of his compatriots in Paris.

M. Jules Védrières (Blériot) reached Jaffa on Saturday after a non-stop flight from Beirut. The French cruiser "Bruix" followed most of the way. In landing, a chassis wheel buckled, luckily without causing further damage to the machine. He reached Heliopolis on December 29th.

M. Bonnier (Nieuport, 80-h.p. Gnome) reached Konia on December 21st after a flight through an intensely cold atmosphere. His mechanic still accompanied him as passenger.

Egypt.

Mr. Oswald Watt, of the Royal Aero Club, writes from Cairo on December 23rd.—"McClean and Spottiswoode have been here over a week—Ogilvie not arrived so far as I know yet. McClean spending most of his time at Alexandria, and when I saw him two days ago his machine had not arrived. He hopes to fly from Alexandria to Khartoum. Neither Védrières nor Bonnier yet here, but Olivier has an old Farman, which flew, the papers say, over Adrianople [It will be remembered that Olivier and Paillard left the Bulgarian Army somewhat abruptly, without doing more than a little test flight, and on their return to Paris posed as gore-and-battle-stained heroes.—Ed.], but when I was at Heliopolis on Sunday it was still in its case.

"Pourpre made a magnificent flight last week round the pyramids in a gale. He was to start for Khartoum on Monday morning at 6 a.m., but the day broke wet—very unusual for Cairo—with a very heavy white fog and (much against the advice of residents at Heliopolis, I hear) he started up and came back in ten minutes as he could not see his way. He took off a hard bit (prepared) of sand, but landed on the soft desert, which I understand was sodden, and up-ended; no damage to pilot luckily, and he reported a few days' work would put the machine right, but it's a bad business for him and has delayed him. His machine is a Morane-Saulnier single seater.

"The papers reported an Italian going to arrive at Alexandria with a 'waterplane,' but I have heard no more of it."

On December 29th, M. Védrières arrived at Heliopolis, and on the 30th flew over Cairo. On the 29th, M. Bonnier reached Beyrout. On the 29th Lord Kitchener made a flight with Olivier.

U.S.A.

The advent of a new three-cylinder two-cycle rotary aero-engine is announced from Chicago, the patents being held by the Frederickson Patents Company. It is said that the engine turns an eight-feet-six propeller with a five-feet pitch at 1,075 r.p.m. A five-cylinder 80 h.p. engine is now being built, on the same principle. It is intended to be cheap.

It is alleged that the Curtiss Company is building at Hammondsport a monoplane flying boat of enormous span.

Canada.

Mr. Cecil Peoli believes in bringing the ancient Christmas traditions up to date. On December 7th he kept the people of Montreal amused for a long time by flying, in his Baldwin biplane, disguised as Santa Claus.

Shoreham Flying.

Perhaps the best exhibition Shoreham has ever seen took place on Saturday and Sunday, December 20th and 21st. Mr. B. C. Hucks and Mr. Cecil Pashley contributed to the programme, the former, of course, being the chief attraction.

Saturday's exhibition was the better and more creditable, considering the strong wind. A fair audience was drawn inside the aerodrome, but some preferred to remain outside, this being cheaper by a few pence. Before Mr. Hucks came out Mr. Cecil Pashley took up Mr. Howey, although the air was bumpy for a box-kite. At 3.30 Mr. Hucks without any ceremony climbed to 1,500 ft., dived, turned a half loop, and continued flying upside-down, finishing with a side turn. Subsequently, at a low altitude, he made six more loops and a double loop, the latter making a great impression. Afterwards the wind rose still more, but Mr. Cecil Pashley went up with Mr. Clarence Winchester.

On Sunday Mr. Pashley took up Mr. Winchester in order to get aerial photographs of the onlookers. Other passengers were also carried. Mr. Hucks made several loops, and on his descent received a great ovation. During the morning he flew to Brighton for lunch, giving on the way a fine

exhibition of vertical banking. Everyone seemed to be highly pleased with the afternoon's flying, but it was discouraging to see many people who could well afford to pay outside the ground standing on cars and other vantage points. — "ORNIS."

Aviation in Court.

On December 16th in the King's Bench Division, before the Lord Chief Justice and a special jury, Messrs. C. L. Pashley and E. C. Pashley sued the British and Colonial Aeroplane Company (Ltd.), for damages as a result of a collision between plaintiff's Sommer biplane and a Bristol biplane, caused by the negligence of the defendant company's servants. The defendants counter-claimed for damages, pleading that the plaintiffs were guilty of contributory negligence. It is interesting to note that Mr. Cecil Pashley appeared on crutches, as the result of a motor-cycle accident, and Mr. Crawford Kehrmaun leant on sticks, owing to a football accident. The following report of the case is taken from the "Times" Law Report for that day:—

Mr. Thorn Drury, K.C., and Mr. C. Doughty appeared for the plaintiffs; and Mr. Hollis Walker, K.C., and Mr. Shakespeare for the defendants.

Mr. Thorn Drury, in opening the plaintiffs' case, said that so far as he knew it was the first time that an action involving a collision between two aeroplanes had been tried in the High Court. There was at Brooklands a flying ground for aeroplanes surrounded by a motor track, and certain persons, among whom were the plaintiffs and defendants, were allowed to hire certain sheds for storing their aeroplanes, and were afforded facilities for flying about the grounds. On Jan. 18th, 1913, one of the plaintiffs took out an aeroplane for testing, and having made several circuits of the track, found it quite satisfactory. He decided to come down, and alighted with his machine heading in a northerly direction. He then saw the defendants' aeroplane heading in his direction. He heard the engine of the other aeroplane shut off and then come on again. He expected the other aeroplane to turn to the right, but instead of that it came on and struck the plaintiffs' machine. The effect of the blow was to turn the machine right round, so that it was facing due south. At the time of the collision the aeroplane was being manoeuvred by a pupil under the direction of one of the defendants' instructors.

Evidence was then given on behalf of the plaintiffs.

Mr. Hollis Walker opened the case for the defendants, on whose behalf evidence was called, and in the result the jury returned a verdict in favour of the plaintiffs. The damages having been previously agreed at £123, judgment was given for the plaintiffs, with costs.

Solicitors.—Messrs. Clifford, Turner, and Hopton; Messrs. William Hurd and Sons.

Public Benefaction.

It is an undisputed fact that the flying meetings at the London Aerodrome at Hendon have assisted very largely to create and extend the interest of the British public as a whole is now taking in aviation in general, for it has been evident that practically every Saturday and Sunday during the past year on which the weather has been at all good, there has been a crowd of at least 10,000 people at Hendon, and that on the big days such as the Aerial Derby, the gate has swelled to something over 50,000. Consequently it is decidedly of interest to have it on the authority of Mr. Gates that during 1913 nearly 750,000 people visited the aerodrome.

A good many thousands of these were doubtless the same people going week after week, but it will be quite fair to assume that something close on half a million people have seen flying at Hendon practically for the first time, and so one may assess the influence the aerodrome has exerted. It is only to be hoped that by educating public opinion in this way, the people of this country will be brought to realise the importance to the nation of the new science and industry of aviation. Even recognising the fact that the London Aerodrome is primarily a commercial undertaking, the proprietors and directors thereof deserve public thanks for the good work they have done.

Incidentally, it is worth while noting that when some years ago a prospectus was issued inviting the public to come into the concern, it was modestly estimated that the gate of the aerodrome would reach 200,000 per annum.

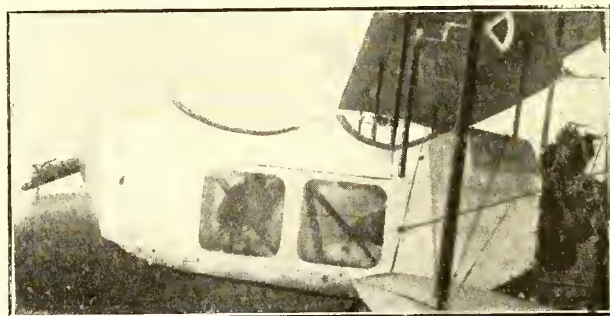
The Vickers Armed Biplane.

Some figures relating to the all-steel arm-carrying Vickers biplane now flying so well at Brooklands will be found interesting, for, not only does the machine fly uncommonly well, but it is of a type which is likely to meet with considerable favour here and abroad for military purposes. The span of the upper plane is 42 feet and of the lower plane 38 feet. The chord is 5 feet 6 inches and the gap 6 feet. The area of the planes is 370 square feet, and the over-all length 25 feet. When empty the machine weighs 1,100 lbs. and it carries a useful load of 840, bringing the total weight to 1,940 lbs, or roughly 5½ lbs. per square foot, by no means an excessive loading. The fixed tail plane has an area of 40 square feet, the rudder has 17 square feet, and the elevator 16 square feet. With the 9-cylinder 100-h.p. Gnome at present fitted the speed is something over 70 miles an hour.

The control is by warping the outer sections of the wings, the wires operating through link gear, instead of over pulleys.

The machine-gun, a Maxim of a new type, is fitted with specially designed sights which allow the marksman to depress the muzzle and aim downwards without having to stand over the butt of the gun to do so.

A special feature of the machine is the streamline section of the steel tubular uprights between the planes and in the chassis. These are exceedingly strong for their weight, and are made specially for the firm out of very high grade steel.



The nacelle and machine-gun arrangements of the Vickers armed biplane.

A Real Work of Art.

Last year the catalogue issued by the Farman firm was quite the finest thing of its kind produced up to that date, but the new one which has just been issued far exceeds it both in the beauty of its production and in its utility. The first half of the catalogue is devoted to aerial touring, and was written by M. G. de Pawlowski. It is illustrated by over thirty of the finest photographs taken from the air that have yet appeared in print. A tour over some of the most beautiful of the chateau country is described and illustrated, and, undoubtedly, many of those who have been so fortunate as to obtain a copy of the catalogue will be seized with a desire to take up aerial touring as a sport. It occurs to one that a regular co-operative campaign on the part of aeroplane constructors on such lines might go far to popularise this side of the sport. The rest of the catalogue is devoted to beautifully illustrated descriptions of the various types of machines built by the firm and their extensive and excellently equipped workshops.

Some idea of the extent of the Farman activities is gathered by the fact that at the end of the catalogue is a simple statement that 1,500 aviators have taken their certificates on Farmans, that 500 officers are flying Farmans, and that 200 officers have taken their military brevets on Farmans.

So costly a production can scarcely be distributed broadcast to small boys and habitual catalogue hunters, but one presumes that a copy will be sent to anyone really in a position to assist in the development of aviation, such as naval and military officers, or people with obviously good addresses in town or country. Requests should be sent to Farman Frères, Rue de Silly, Billancourt, Paris, or to their British representatives, The Aircraft Mfg. Co., Ltd., 47, Victoria Street, S.W.

Motors and Sundries at the Paris Aircraft Show.

The motors at the Paris Show, so far as novelty is concerned, call for even less attention than did the aeroplanes, for there was practically nothing there that had not been seen before.

The Austro-Daimler Company showed their six-cylinder engines of 120 h.p. and 90 h.p., which are of course well known in this country, and have been described in their latest types very fully in *THE AEROPLANE*. The workmanship is as excellent as ever, and one feels sure that those being built by Beardmore's of Glasgow will maintain the engine's reputation.

The biggest engine exhibit in the Show was that of the Gnome Company, and it was in a way the most interesting, in that they showed their original rotary engine and various experimental types of the monosoupape, although they naturally omitted to show the internal economy of the latest and successful engine of this pattern. The exhibit included two 160 h.p. 14-cylinder Gnômes of the ordinary type and a couple of 100-h.p. 9-cylinder engines. One gathers that the 100-h.p. monosoupape still needs one or two alterations, but that the 75-h.p. engine, which is the same size as the old 50-h.p., has turned out very well. Of course, the workmanship of these engines is as fine as ever.

Quite one of the most interesting of the engine exhibits was the Canton-Unné-Salmson. This included a 200-h.p. and 85-h.p. of the usual type, and one of 150-h.p. and one of 300-h.p. for dirigibles, in which the cylinders lie horizontally, and drive the shaft at right angles through a bevel gear, in the same way as the engine in the Bréguet which M. Richet flew so well at Hendon early this year. The 300-h.p. is a colossal affair, but it certainly seems to have possibilities for the large size seaplanes coming into vogue. One looks forward with interest to the first British-built engines on the Salmson system which are being built by the Dudbridge Iron Works of Stroud. Apart from aero-engines, a fascinating exhibit on this stand is a 200-h.p. 7-cylinder engine, coupled direct to a dynamo for electrical work. The circular shape of the engine alongside of the dynamo, makes one of the most compact plants imaginable.

The Chenu people showed two 6-cylinder vertical engines for dirigibles, but there was nothing of particular note.

The Panhard firm showed what is for them a novel engine, namely, an 8-cylinder "V" type. Each set of 4-cylinders is cast in one block. It is rated at 100-h.p., is water-cooled with cast-iron jackets, and is presumably out of the question for aeroplanes on account of its weight.

The Renault exhibit consisted of a 12-cylinder 100-h.p. and an 8-cylinder 70-h.p. of the usual type, with the exception that the carburetter pipes on each side are brought through between the two middle cylinders, and there bifurcated, so that each branch feeds two cylinders. This is certainly an improvement on the old method by which the pipe ran straight along each set of four cylinders with branches to each, so that the cylinder at the far end got practically no gas, but even now the distribution cannot be as perfect as if each of the branch pipes again bifurcated, so that each cylinder was at the same distance from the carburetter.

The "Le Rhône" engine, which has this year proved the most formidable rival of the Gnome, had quite a big exhibit, consisting of an 18-cylinder 160-h.p., a 14-cylinder 120-h.p., an 11-cylinder 100-h.p., a 9-cylinder 80-h.p., and a 7-cylinder 60-h.p. As usual, they are beautifully made, but do not show any novelty in design or construction as distinct from those already seen in this country.

The Clergét, which has also put up some good performances this year, showed a 7-cylinder 80-h.p. and a 7-cylinder 60-h.p. rotary, a 7-cylinder radial water-cooled 60-h.p., and an 8-cylinder "V" 200-h.p., all very well made, but quite without novelty.

The Anzani Company made a good show with seven motors, ranging in size from the 3-cylinder 35-h.p. to the 20-cylinder 200-h.p. These, again, were of the type already seen in this country.

A somewhat novel engine, which, however, did not inspire

much confidence, was the Dhenan, a rotary engine with seven cast-iron cylinders cast in one block. The bore and stroke are 90 by 150 mm., and it is rated at 60-h.p.

Another new engine was the "S. H. K.," a 7-cylinder monosoupape rotary, which was claimed to weigh one kilogramme (2½ lbs.) per horse-power, and is, therefore, not surprisingly light.

The Esselbé showed a 7-cylinder rotary valveless engine, and there was a weird thing called the Edelweiss, in which the pistons stood still, and the cylinders reciprocated, thus securing additional cooling. One gathers that an aeroplane has actually flown with this engine.

A comparatively small, but very nice exhibit, was that of the De Dion-Bouton Company, who showed several specimens of their new 80-h.p. 8-cylinder "V" type aero motor. This engine was fully described quite recently in *THE AEROPLANE*, and, therefore, one need not repeat the description, but the work in the aero engine and that in their motor-boat engines which were also shown, fully maintains their high reputation.

Among the accessories, the Chauvière propeller naturally attracted much attention, and, again, M. Chauvière showed a section of one of his propellers under water, which was to be tested for staunchness when the show closed. One noticed also that a large majority of the machines in the show were fitted with Chauvières.

A good display was also made by M. Ratmanoff, whose Normale propellers have done many good performances, and seem to be appreciated by many exhibitors. These propellers are to be built by Hamble River, Luke and Co.

The Levasseur air-screws, similar to those made in this country by Vickers, Ltd., also had a very good exhibit, and it is interesting to note that the particular claim for this propeller, namely, that the hooked point entirely eliminates the bump felt every time some propellers pass the edge of the plane, appears to be substantiated in practice.

As last year, the French Army lent a number of their aeroplane transport wagons and repair shops, presumably in order to demonstrate to the people how thoroughly the army is equipped for its work. Incidentally, of course, they were interesting to people of other nations also, but it was highly satisfactory to note that the Bristol automobile repair shop is quite equal to any of those built in France, and in some ways superiority was shown by the Bristol Company's. The machine in question is a 30-40-h.p. waggon, built throughout by the Bristol Tramway and Carriage Co., of which Sir George White is head. The wagon contains a vice, anvil, compound lathe, bandsaw, drilling machine, shaping machine, grindstone, and emery wheel. The motor drives a dynamo which supplies electric light to the whole outfit, and drives various small motors on the different machines, including blowers for the brazing lamps.

The wagon is also equipped with a winding drum, so that in the event of its getting stuck in bad ground, it can practically haul itself out of anything so long as there is a substantial fixture in the surrounding district to which a cable can be attached. Also, of course, by fixing the wagon, the winding drum can be used to haul any other weight which needs to be shifted. The sides of the wagon let down as regards the lower half, while the upper half props up, thus providing extra floor space to the workshop and a roof for it.

On ordinarily decent roads the machine can average 20 miles per hour. Its weight is somewhere in the region of seven tons with all the machinery on board, and the frame and springs must be made of unusually fine material to have stood the bumping of the "pavé" approaching Paris from the westward, for I gathered from the engineer in charge that the last few miles were travelled at top speed in order to reach the Grand Palais in good time. It always pleases one to think of the effect one would produce by bringing one of these wagons into operation on a peaceful village green during the evening, and setting to work on an all-night repair job of large dimensions. Probably such a visit would be handed down to posterity among the residents of the place along with that of the last circus.—C. G. G.

Flying at Hendon.

The Christmas festivities at Hendon extended over no less than four consecutive days, and the weather provided a very fine variety of conditions. On Christmas Day M. Chanteloup made his British debut in his Caudron biplane (60 h.p. Le Rhone,) looping the loop and banking up vertically in his own characteristic fashion. The Boxing Day show, however, is historic; it is said to have provided the finest exhibition of flying ever seen in England. In the first place the wind at times exceeded 60 m.p.h., and in the second place, both M. Chanteloup and Mr. Hamel performed feats which were unthinkable six months ago, and that in an atmosphere which, twelve months ago would have kept all aeroplanes very securely housed. Unfortunately in landing Mr. Hamel stood his Morane-Saulnier on its nose; he was prevented from overturning by the high cabane, and came to no bodily grief, but he broke up his propeller and damaged the engine sufficiently to put the machine out of action for some days.

M. Marty and M. Noel also went up, the latter with a passenger in the M. Farman, a very boisterous voyage to a height of 3,400 ft. M. Marty's first flight terminated with a high dive, his engine switched off until he touched ground. All this in a wind whose gusts were strong enough, even on the ground, to turn over a whole row of chairs.

Saturday was a splendid all-round day. The wind was not severe, and several machines were up in the morning. M. Marty had the misfortune to overturn the Morane-Saulnier (80 Le Rhone) on the ground. He emerged unhurt, and as in similar cases, the machine suffered very little damage. The ideal landing-ground for a Morane is, of course, an asphalt tennis-court much magnified, and it is likely that this penchant for overturning will become a habit when the ground gets really heavy. M. Marty was neither hurt nor disturbed, but flew again in the afternoon on the 60 Morane in his usual excellent form.

Mr. Hamel also flew this machine during the afternoon, having spent the last twenty-four hours searching vainly for a new nose plate to his Gnome.

M. Chanteloup, in the absence of wind (the breeze aloft could not have been much more than 30-35 m.p.h.), did precisely what he liked with his little Caudron. He turned over sideways, he turned over up-ways, and he turned over down-ways. He did not loop the loop—as the daily Press

appears to think—"backwards, instead of the usual forward method," he looped it backwards according to the prevailing mode, with this difference: he does not dive to it, he flies along horizontally, then suddenly up goes his nose, and he is over. On one occasion in the upside-down position he glided for nearly the length of the aerodrome, descending steeply. His "get-off" is also picturesque, for he leaves the machine entirely to itself, and ascends waving both arms, and merely directing its course with the rudder bar. The machine must be beautifully balanced. He uses only an ordinary belt and no shoulder-straps, and the machine is a standard Caudron in every way except for a stronger upper cable to the warp.

M. Chanteloup, like M. Verrier, can stand still in the air, apparently in any wind above 20 m.p.h., but his most appalling and spectacular feat is the vertical dive. He cuts off his engine and descends, not "nearly" vertically, but in an absolute plumb-line descent, his wings thrashing round under full warp (the Caudron tail warps as well as the wings) like an impossible propeller, and his struts and wires shrieking through the air like a gargantuan wind-harp. It is no sight for a nervous man.

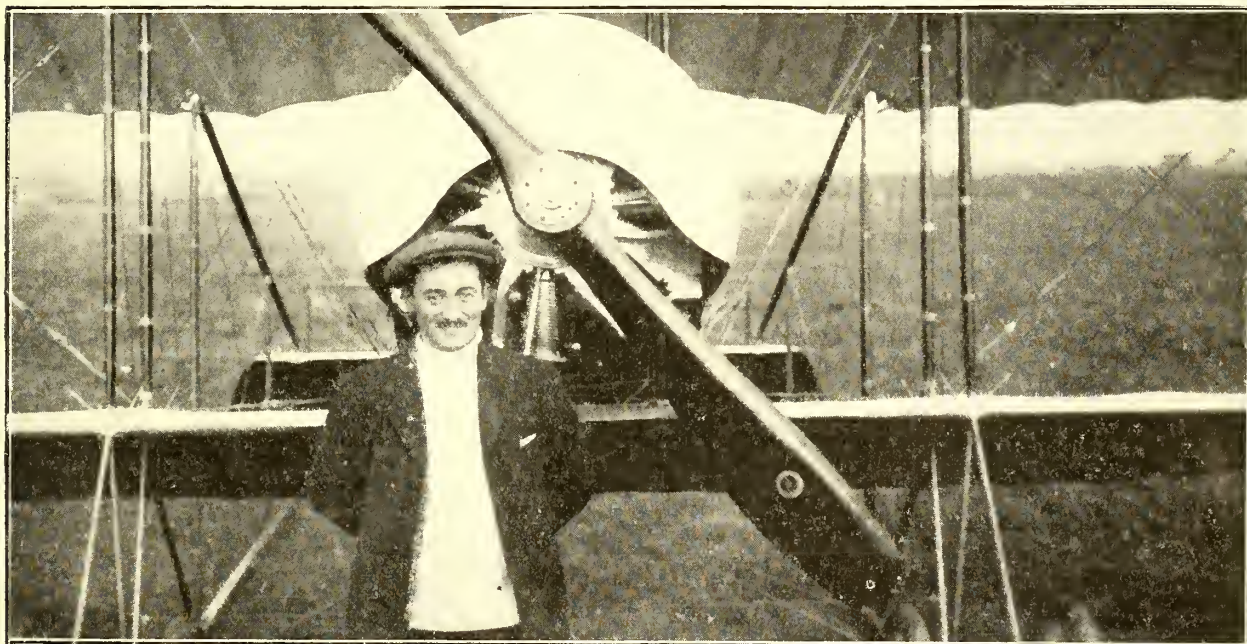
On alighting he was mounted in Mr. Hamel's car, and bumped triumphantly past the enclosures to the waving of kerchiefs and the loud acclamations of a considerable multitude.

M. Noel flew also during the afternoon, as did Mr. Grahame-White, and Mr. Carr, the latter in a G.-W. box-kite.

On Sunday there was also a very fine attendance. The day was clear and frosty, and the flying—although M. Chanteloup had departed for France—was excellent. Mr. Hamel was in the air with Miss Trehawke Davies, in the latter's Blériot. Mr. Grahame-White took several passengers in his M. Farman biplane. Messrs. Carr, Noel, and Marty also were out, and M. Baumann in his Caudron (60 Anzani), went to a height of 6,000 feet.

Nomenclature.

Mr. E. L. Gunston writes:—"Since boucling the boucle is a feat which has come to stay, and which apparently is as common as sane flying, these feats performed by Pégoud, Chevillard, and certain other scientific gentlemen, will have to be called by a distinguishing name. Why not 'aerobatics'?"



M. Chanteloup and his Caudron biplane (60-h.p. Le Rhône) before starting for his flights at Hendon.

Aero Engines of the Future.

BY LUCIEN A. BOLLACK.

Few engineering problems have brought such a variety of solutions as that of aero engine design; for instance, the number of cylinders varies from one to twenty—3, 5, 7, 9, 14, 16 and 20 cylinders are not unusual in present-day engines; these cylinders can also be set in many different ways. Water-cooling and air-cooling (natural and forced) are still fighting for supremacy without any one gaining ground.

Now let us try and find what solution will be used in the near future (say in five years' time). We shall not discuss any new revolutionary design. The explosion turbine has yet to show its possibilities. The question is: Will the light or the heavy engine win? Different nations are now inclined towards different solutions. Germany is using mostly motor-car type engines (vertical and water-cooled cylinders), France favours the rotary engine, i.e., Gnome, Le Rhone, Clergèt, Verdèt, etc., and the fixed radial and semi-radial engines, while the automobile type engine is very little used. England builds fixed water-cooled engines, but uses a large number of French light air-cooled engines. Italy, Russia and Belgium use foreign engines—mostly French. The U.S.A. use water-cooled engines, although air-cooled and rotary engines are also built.

The problem remains thus: Will Germany be converted to the light engine or will France abandon it?

For races, cross-country competitions, and record breaking (speed and height) an ultra-light engine is necessary, but for touring, travelling, scouting and other practical purposes, will not a heavier but more reliable engine be better? An engine which can be fitted with starting handle, clutch and silencer will be required. An engine reasonably cheap to buy and maintain will have a larger demand than a more extraordinary engine, remarkable in construction and price. Some very ingenious ideas and clever inventions have been tried but will not a common sense engine be that of the future? An engine which can be put in anybody's hands, which will run with little or no attention, which will use a reasonable quantity of fuel, and ordinary engine oil, not castor oil like rotaries.

We have seen that for cheapness and reliability we may favour an engine of orthodox design; but what will be its construction?

Number of Cylinders.—Owing to excessive vibrations and to the high h.p. used, four cylinders will not be sufficient. Six, eight and twelve cylinders are very likely numbers—the bigger h.p. engines having the larger number of cylinders, although the lightness and more even torque of, say, a 12-cylinder engine, may balance the cheaper cost and greater simplicity of, say, the 6-cylinder engine, even for smaller powers.

Horse-power will never come low again as it used to be (25 h.p.). We shall have low power motors (50 to 100 h.p.), high power motors (100 to 200 h.p.), and extra high power motors (200 to 400 h.p.). Perhaps even 500 h.p. for speeds of 200 m.p.h. on average sized aeroplanes, or 150 m.p.h. on very large ones.

Cooling.—Will the simplicity of air-cooling or the reliability of water-cooling conquer the supremacy for one type? Owing

to the tendency to enclose engines in a streamline body, to the low lubricant consumption and the probability of the use of rotary valves of some kind (which would not be satisfactory with air-cooling), it seems that the water-cooled engines will be in the majority, but without driving the air-cooled engine out of existence. The water-boiling and condensing system (Antoinette) is not likely to come again.

Two-stroke motors will be tried again and probably abandoned again. In two-cycle engines we get either: A simple one giving 20 to 40 per cent. more power than a four-cycle one of the same size, but wasting a lot of fuel. A perfected one giving 50 to 60 per cent. more power than the four-cycle one, and having a low consumption, but only obtaining this by means of pumps, double stepped pistons, valves, etc., the whole being heavier and more complicated than a four-cycle one of the same power. Hence the good old "Otto" cycle should have a good many years to live yet.

Speed of Engine.—High-speed engines (2,000 revs.) will be used owing to their light weight and fuel efficiency. A reduction gear will be necessary. Ultra-high-speed engines (3,000 to 5,000 revs.) will be used in small quantities, but the slow-speed motor will disappear as soon as the reduction gear problem will be completely solved.

The cylinders will probably be of cast iron, but not with cast water jackets. Sheet metal jackets (copper, nickel, etc.), held on the cylinder by pressure (like the Cadillac motor-car engine) or a soft water-tight joint (like on the Green engine) will be used. Electrolytically deposited jackets are not reliable, but welded sheet steel jackets may sweep the board. Engines built up of steel parts welded together will have to give more satisfaction than they do at the present time to be a success.

Valves.—Owing to the fact that aero engines are always running at full power, a large valve area is necessary. A very large valve, or a double set of valves being both objected to, a slide or rotary valve will be used. All breakdowns due to valve or valve spring breaking will thus be eliminated.

Carburetors and Fuel.—Petrol or other light carburant like benzol will be used, but the fuel consumption will have to be lowered to that of present-day motor-car engines. Carburetors will have to give better flexibility than they do now. Paraffin and heavy oils will never be tried on aero motors for reasons of weight and difficult starting.

A fly-wheel means weight, but if the propeller flutter can be diminished, and hence the efficiency increased, it pays to put one of reasonable size and weight.

A clutch, a silencer, two magnetos and a double set of carburetors, pumps, plugs, etc., will ensure perfect reliability and more comfort to the flyer.

Variable stroke, variable compression, double acting engines, are not likely to have any success; and absolutely new designs are not likely to be heard of—except when some "inventors" will bring out marvellous ideas which have been tried and abandoned long ago.

Iodine for Aviators.

Many little unforeseen accidents befall the aviator, and the motorist also—maybe only a scratch or prick from a rusty wire, or a cut, or a barked shin, but the inconvenience is considerable so long as the injury remains untreated. Further, the danger of more serious consequences in the form of blood-poisoning, or even tetanus if road dirt remains in a wound, is always present unless prompt antiseptic precautions are taken.



Tincture of Iodine is now recognised by all prominent surgeons as the best first aid antiseptic application for such injuries. It has recently been put up in a most ingenious form, suitable for aviators and motorists, and ready for immediate use.

"Vaporole" Tincture of Iodine is held in a small hermetically-sealed glass container, the point of which is swathed in absorbent material. On breaking the point by tapping it smartly with a knife or anything hard, the material becomes saturated with the iodine, and is thus converted into an antiseptic swab, which can at once be applied to the injury. "Vaporole" Tincture of Iodine is compact and portable. The contents cannot escape and soil surrounding articles. It is available for use the moment it is required. Two sizes are issued and may be obtained of all chemists; the 20-drop size, which is suitable for personal use, in boxes of six, price 1s. 6d.; and the $\frac{1}{2}$ ounce size, each enclosed in a wooden protecting tube, price 8d.

In use it is, of course, advisable to wash the wound thoroughly with water to remove the surface dirt, then apply the iodine swab to the clean raw surface. This new method is the invention of Messrs. Burroughs and Wellcome, who have already done much for aviation.

The Week's Work.

Weather Reports for Week ending December 28th, 1913.

Montrose.—Mon.: Clear. Tues.: Fine, brisk. Wed.: Clear but stormy. Thurs.: Very dull. Fri.: Clear and stormy. Sat.: Bright with wind.

Eastchurch.—Mon.: Windy and dry; no flying. Tues.: Rain and wind; flying. Wed.: Windy and dry; no flying. Thurs.: High wind and fine; no flying. Fri.: High wind, but dry; no flying. Sat.: Wind, but dry; no flying.

Hendon.—Mon.: Fair. Tues.: Windy. Wed.: Windy. Thurs.: Very windy. Fri.: Nearly a gale. Sat.: Sunny and windy. Sun.: Sunny and less wind; cold.

Brooklands.—Mon.: Fair. Tues.: Fair. Wed.: Windy. Thurs.: Gale. Fri.: More gale. Sat.: Fine. Sun.: Good flying.

Shoreham.—Mon.: Calm. Tues.: Calm. Wed.: Windy. Thurs.: Windy. Fri.: Fair. Sat.: Windy. Sun.: Strong wind.

School Reports.

Hendon.—At GRAHAME-WHITE SCHOOL: Instructor during week: Mr. Strange. Pupils with instructor on machine: Messrs. Fenwick, Cowley, Bjorkland, Norris. Straights alone: Messrs. Clarke, Bjorkland, Norris. 8's or circuits alone: Messrs. Cripps and Webb. Machines in use: Grahame-White biplane 107; Blériot monoplane.

At W. H. EWEN SCHOOL: Instructors during week: M. Baumann and Mr. F. W. Goodden. Pupils straights or rolling alone: Messrs. Bankes-Price, Freshney, Busk, and Murray. Circuits alone: Mr. Badgery. Half-circuits: Messrs. MacGregor and Cooper. Certificate taken during week by Mr. A. Delfosse Badgery. Machines in use: 35-h.p. Caudron biplanes.

On Wednesday Mr. F. W. Goodden flew to Tonbridge with

a passenger, doing the journey in 50 minutes in spite of strong wind. He returned on Saturday morning.

Brooklands.—At BRISTOL SCHOOL: Instructor during week: Mr. Merriam. Pupils with instructor on machine: Lts Watkins, Sanders, and Bromet. Straights or rolling alone: Lt Halford, Lt. Robertson. 8's or circuits alone: Lts Bromet, Sanders and Robertson. Certificates taken: Lts Bromet and Robertson. Mr. Merriam gave an exhibition flight on Monday.

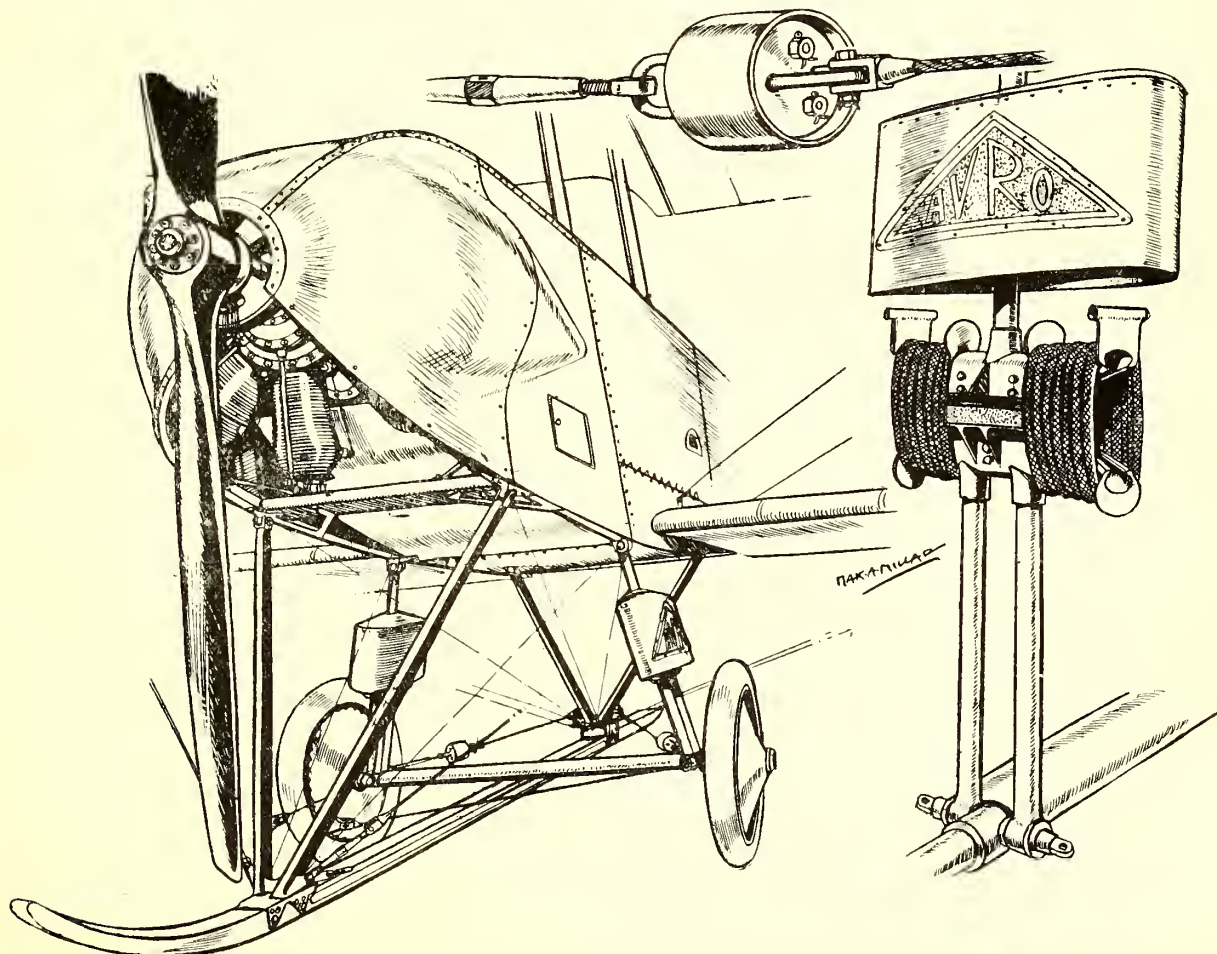
On Tuesday, Wednesday and Sunday (28th), Mr. Jack Alcock was flying with passengers on the M. Farman (100 Sunbeam).

Shoreham Flying School.—Instructor during week: Mr. W. H. Elliott. Pupils on straights or rolling alone: Lt Lucas, Lt Clemson, Mid Thompson, Messrs. Cannon, Purnell, Hayland-Wilson. Machine in use: Avro tractor biplane (45 Green).

The Avro's Latest.

The latest performance of the Avro biplane, 80-h.p. Gnome, is more astonishing than ever, and ought to give our friends in France something fresh to think about. Properly timed over the measured 1,000 yards at Brooklands the machine reached a top speed of 83 m.p.h., and a low speed of 30 m.p.h. At the low speed she was really flying and not progressing in a series of jumps, for Mr. Raynham had throttled the petrol supply down and was switching off and on at frequent intervals so that the propeller was running fairly steadily. The "split" in speeds is greater than anything yet recorded, the high speed being 2.77 times the low, which beats even the "tabloid" Sopwith, whose speed range is 92 to 36.9, or about 2.48. Prior to doing these tests Mr. Raynham had taken the Avro up to 5,000 feet in nine minutes, carrying a passenger and fuel for three hours, a climb of 555 feet per minute.

It is interesting to note that by removing the little wind shield from the passenger's seat between three and four miles an hour was added to the speed.



The chassis of the 80-h.p. Avro, showing the details of the shock absorbers, and the arrangement of the wiring. The engine cowl has been carried right round the engine since the sketch was made.

TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane is one of **PIGGOTT'S PATENT AEROPLANE TENTS**.

Pattern No. 3, suitable for a Bleriot Monoplane. Price in waterproof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.

Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

GODDARD'S

**MOTOR, MOTOR-CYCLE,
and CYCLECAR HOUSES.**



t. ft. ft.		£ s. d.
9 x 6 x 7½	high ...	4 5 0
10 x 7 x 7½	" ...	5 7 6
12 x 8 x 8	" ...	7 0 0
14 x 8 x 8½	" ...	8 5 0

Carriage Paid.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned ¾ in. T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing.

Large Illustrated Catalogue with prices of other houses, post free.

Makers of Portable Wooden Buildings of all descriptions.

Our Prices are all Carriage Paid.

GODDARD'S, St. Mary's Road, ILFORD, ESSEX

**CRITCHETT
WELDING & ENGINEERING CO.,
WELDING & BRAZING
.. SPECIALISTS ..**

Aluminium Welding Guaranteed.

Wire, Write or Phone

Tele. Address: Flexicable, Watloo, London. Phone: 2424 City.

Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.

HANGARS.

Any size built and fitted with
PERFECT SLIDING DOORS

obviating all the disadvantages of every present system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

**GARAGES, CLUB HOUSES
and other buildings.** *Estimates Free.*

**WIRE-WOVE ROOFING COMPANY,
108, Queen Victoria St., London, E.C.**

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

PATENTS.—How to Patent Invention. Particulars, with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120.

W. H. EWEN SCHOOL OF FLYING. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work. £50. Passenger flights from £2 2s.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION CO., London Aerodrome, N.W.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

TUITION FOR THE AIRSHIP PILOT'S CERTIFICATE. Inclusive fee £100. Special terms to Naval and Military Officers. New regulations requiring twenty ascents come into force January 1st, making course more difficult and expensive, so take the opportunity of qualifying now under present conditions.—**THE WILLOWS AIRCRAFT COMPANY, LTD.**, The London Aerodrome, Hendon.

PROPELLERS.

FOR sale, "Rapid" propeller for 35 h.p. Anzani, 210 by 110 mm. Tips painted white and autographed by Messrs. Grahame-White, Sopwith, Valentine, and many other famous aviators. Interesting curio. What offers?—**M. T., 1, Rose Villas, Annesley Avenue, Hendon, N.W.**

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIERE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD.**, 307, Euston Road, London, N.W. Telephone: 912 North. Telegrams: "Avirop," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.**, 1, Queen Victoria Street, London. Tel. 834 Bank.

ENGINES FOR SALE.

25 H.P., water-cooled, excellent condition, complete with propeller boss, £34.—**N. S.**, 174, West Green Road, London.

EMPLOYMENT.

WIREMAN AND ERECTOR.—Thoroughly experienced man wanted at once. Good opening for smart man.—Apply, giving full particulars and wages required, to the **EASTBOURNE AVIATION CO., LTD.**, Eastbourne.

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—**WULFING**, Aeronautical Engineer, 2, Barclay Road, Walham Green Station.

WANTED, excellent all-round aeroplane mechanic, used to wood and metal work, wiring and splicing. Experience with stationary engines preferred.—Apply Box 526, c/o THE AEROPLANE, 166, Piccadilly, W.

WANTED.—Expert Oxy-Acetylene Welder for aeroplane work.—Reply, stating experience and salary required, to G. H., c/o THE AEROPLANE, 166, Piccadilly, W.

UPSIDE-DOWN FLYING.

GEORGE LEE TEMPLE is open to give exhibitions of upside-down flying at home or abroad.—**TEMPLE, Hendon Aerodrome.**

MISCELLANEOUS.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD.**, 130, Hackney Road. 'Phone 4770 Wall.

MODELS.

DING QUALITY MONOPLANES are stocked in London by Gamages, Holboru; Hamleys, Regent Street; Selfridges, Oxford Street. They are well worth inspection.—**THE W. R. DING COMPANY**, 24, Villa Road, Handsworth, Birmingham.

M.S.C. Duration Monoplane, size 31 in. by 24 in., 5s. Flights of nearly ¼-mile have been obtained with this model. Sets of finished parts, with drawings for constructing the above model, 2s. 6d. We stock everything for models.—**MURRAY, SON & CO.**, 387a, High Road, High Cross, Tottenham, N.

T. W. CLARKE AND CO.,
HAMPTON WICK, MIDDLESEX.

'Phone—Kingston 869.

Est. 1906.

THE Pioneer Aeroplane Accessory Manufacturers wish you the Compliments of the Season, and offer to you an accurately marked steel rule, gratis, with every order to the value of 5s. Send along your orders, and you will be delighted. Send stamp for lists. Be in time!

S. J. KEMP & Co.,
CROWN WORKS, Kingston-on-Thames.
(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)
Every Requisite for Model Aeroplanes. Send 1d. for List.
Models of Every Description built promptly.
Phone 321 Kingston. Telegrams "Garage, Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.
LIQUID SCOTCH GLUE
Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

FLYING AT HENDON

SATURDAY NEXT, January 3rd, 1914, NEW YEAR MEETING
16 Mile Cross Country Race for the LONDON AERODROME CUP.

COMING EVENTS.

Sat. Jan. 10th. **JANUARY MEETING.**
 Sat. Jan. 17th. **SECOND WINTER MEETING.**

A SUGGESTION

The Directors of the Aerodrome would be glad if visitors who are interested in aviation could arrange to display small notices in their offices and business premises, giving particulars of Flying Races and Exhibitions at the London Aerodrome, Hendon. The Directors would much appreciate their co-operation, and would be glad to send Fixture Notices, on receipt of a note to the London Office, 166, Piccadilly, W.

AVIATION LECTURES

The Grahame-White Aviation Co. have prepared a number of slides of aeroplane subjects, and will be pleased to loan these free of charge for the purpose of illustrating lectures on Aviation during the Winter months. Applications should be addressed to "Lecture," London Aerodrome Offices, 166, Piccadilly, W.

WINTER SEASON — RACES EVERY SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 2.30 p.m. till dusk (weather permitting).

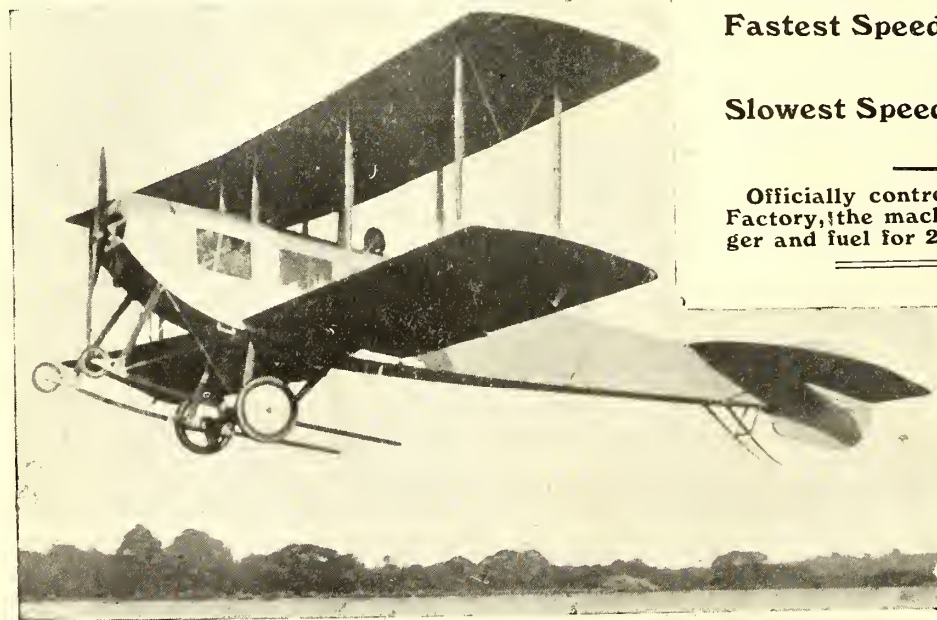
Admission, 6d., 1s., 2/6 (Children Half-price). Motors (including chauffeur), 2/6

THE LONDON AERODROME, HENDON, N.W.

Proprietors: *The Grahame-White Aviation Co., Ltd.*
HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."
LONDON: 166, Piccadilly, W. Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnome) beat all WORLD'S RECORDS FOR EFFICIENCY.



Fastest Speed 92 miles
 (154 kms.) per hour.

Slowest Speed 36.9 miles
 (61 kms.) per hour.

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

PREVIOUS RECORDS on the preceding type of SOPWITH BIPLANE (80 h.p. Gnome).

British Duration Record.
 8 hrs. 23 mins.

British Height Record (Pilot alone) 11,450 ft.

British Height Record (Pilot and 1 Passenger) 12,900 ft.

British Height Record (Pilot and 2 Passengers) 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's Admiralty and War Office.)

Telephone:
 1777 KINGSTON.

Offices and Works: **KINGSTON-ON-THAMES.**

Telegrams:
 "SOPWITH, KINGSTON."

Printed for THE AEROPLANE AND GENERAL PUBLISHING COMPANY, LIMITED, by BONNER & Co., The Chancery Lane Press, Rolls Passage, London, E.C.; and Published by WM. DAWSON & SONS, LIMITED, at Rolls House, Breems Buildings, London.
 Branches in Canada, Toronto, Montreal, and Winnipeg; in South Africa: Capetown, Johannesburg, and Durban.

"THE AEROPLANE," JANUARY 8, 1914.

THE AEROPLANE

Edited by CHAS. G. GREY. ("Aero-Amateur")



VOL. VI. [REGISTERED AT THE G.P.O.]
AS A NEWSPAPER.

THURSDAY, JANUARY 8, 1914.

No. 2

A GOOD GET-OFF.



The photograph shows Mr. Gordon England getting off on the Wight seaplane (160 h p. Gnome). The quickness of the machine in leaving the water may be seen by the whirl left only a few yards behind it, on the extreme right of the picture. The excellence of the start may be taken as an allegory for 1914.

The special design of the

Handley Page Planes

gives to the aeroplane that inherent stability which makes this machine so easy to learn upon, so simple to fly.

• • • • •

Flying School - - Hendon

• • • • •

TELEPHONE
2574 VICTORIA.

TELEGRAMS
HYDROPHID,
SOWEST
LONDON.

HANDLEY PAGE, Ltd.,

72, Victoria Street, S.W.,

CONTRACTORS TO H.M. WAR OFFICE.

WORKS:
CRICKLEWOOD,
LONDON, N.W.



The "Bristol" Flying Schools

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types, of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS.

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.				ABROAD.			
	s.	d.			s.	d.	
3 months, post free	1	8		3 months, post free	2	9	
6 " " "	3	3		6 " " "	5	6	
12 " " "	6	6		12 " " "	11	0	

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Road to Progress.

Having now paid off 1913 for good and all, and having taken over 1914 for better or worse, it appears an opportune moment to consider how further progress may be made in the design and manufacture of aeroplanes. It must be admitted by anyone who thinks the question over for a few minutes that there is nothing to be gained by developing aeroplanes along the lines of those now in existence. We are bound to come up against a dead-end before long, just as the French have done. We may go a bit further than they have done; we have already produced machines which fly faster and yet slower with the same power than any French machine, but if we continue on the same lines we shall only produce faster and faster machines, whereas what we want are safer and safer machines. Speed for speed's sake, at any expense, is always worth while, but it only helps development in one direction, and may hinder it in others; whereas increased safety means bringing more people into the game, which means development in every direction.

Even engine improvement is not so vital as is improvement in aeroplane design, for, suppose some Heaven-sent genius produced an engine weighing one ounce per horse-power, even that would not make flying any safer if it were used on existing aeroplanes; in fact, it would add to the danger, because it would enable manufacturers to put so much power into their machines that the mere air-pressure would pull them to pieces, as has already happened when too powerful an engine has been put into a machine, and as will happen again in one or two cases of which I know, if the pilots are not very wary.

Why Aeroplanes are Safer.

Last week I pointed out how much safer flying now is than it was a year ago, and it is just that increase in safety which makes it worth while to go further and make flying safer still, for the time is now rapidly approaching when aviation may become a genuine sport and even more, if only the manufacturers will set to work the right way.

The present state of comparative safety has been reached in various ways. Pilots have become more skilful with long practice. The general stock of knowledge of the air and its ways has increased, so that pupils at the schools are taught to avoid the more obvious mistakes—knowledge which cost their tutors many hard knocks to learn. Designers, as a rule, and nearly all pilots, can tell at once whether a machine is properly balanced or not, so we no longer have tail-heavy machines wallowing about—except for very elementary school work—and at most schools even the box-kites are now properly balanced by having the weights well forward. Thanks to a moderately accurate disposition of side-surfaces, machines no longer execute a side-slip and nose-dive as soon as they over-bank slightly. The modern aeroplane can, by a skilful pilot, be made to side-slip bodily without dropping its nose and diving. We are, on the whole, beginning

to know something about centres of pressure and of gravity, and so aeroplanes are much more controllable in every way. Construction is better. We know more about our materials, the strains they have to stand, and the loads they will take safely. Consequently, there is less danger of breakages in the air. All these things have made flying safer, but they are not enough. We still depend too much on the pilot's skill, or, to put it slightly differently, we still give the pilot too much work to do.

The true road to further progress will give us machines which are inherently stable and have a big range of speed which will allow them to land slowly. That is to say, the pilot must only be called upon to use his skill in starting and landing, and then must require only a moderate amount. When once in the air the machine must stabilise itself. Also, it must be possible to check its speed in the air, for, although it must have a fine gliding angle, it must be possible to get it onto the ground as soon as it is flattened out after a dive, instead of, as in the highly-efficient machines of to-day, gliding for hundreds of yards a few feet off the ground and ultimately running into the first obstruction it meets. Designers must give us, firstly, inherent stability; and secondly, variable head-resistance—or air brakes. In other words, we must have the fool-proof aeroplane.

Why Aeroplanes must be Safer Still.

Perhaps a simple illustration or two will prove my point better than the bald assertion that aeroplanes must be simpler and safer to fly, for several first-class pilots with whom I have discussed this subject insist that what they want is still more control over their machines, instead of less. The last thing they want is inherent stability. They hate the idea of a machine which would fly them, instead of their flying it. Unfortunately, being "experts" in their own way, their opinion carries undue weight both with manufacturers and among official people who decide what the Services shall buy. One is apt to set over-much store by the opinion of the expert performer, who is generally young enough to trust implicitly to his own skill and too young to have learned how inevitably history repeats itself. When youthful prejudice in favour of the devil one knows, as against the devil one does not know—who may really be an angel in disguise—is added to the huge mental inertia of the born and bred manufacturer, and the innate conservatism of the Englishman, one arrives at a state of things compared with which the present Opposition front bench is a gang of rampant revolutionaries.

However, being a middle-aged person with a fairly logical mind, I recall exactly similar arguments over motor-cycles and cars in the days when most of our popular aerial heroes were little boys in knickerbockers. I remember devoting nearly two years to trying to persuade makers of motor-cycles that their machines should be controlled from the handle-bars, and not from levers on the tanks, and that proper

non-skid tyres were needed. I had all the expert opinion against me. The experts said that you could see what you were doing with levers on the tanks, and that non-skid tyres would slow the machines. They knew, because they never rode at less than forty miles an hour on the open road. I knew, because I had covered some 10,000 miles on South of Ireland limestone—quite a good deal of it on various angles of my person. Their view was that of the high-speed expert; mine was that of the man who wanted to get there as safely and comfortably as possible. And who was right? Would you fancy the idea to-day of riding a smooth-tyred motor-bicycle over slippery roads, steering with one hand, trying to adjust tank-top taps with the other, and barking your knuckles against the ratchet-levers every time the machine hit a bump?

Similarly with motor-cars. Even in 1914 there are men left who hate the refined, fool-proof, "you-press-the-pedal-the-car-does-the-rest" car of to-day, and long for the old type where the dash-board resembled a combination of a signalman's cabin at a main-line junction and a central-station switchboard—the kind of thing that had about three octaves of drip-feed lubricators, each needing special adjustment, strung across it, and where there were levers for every possible thing. You advanced the spark with a lever, you adjusted the petrol with a lever, you worked the extra air with a lever, you varied the valve-lift with a lever, you hoped for the best with a lever—in fact, you did everything except lever yourself into and out of the car with a lever.

One friend of mine, who loves this type of car, equally prides himself on never using non-skid tyres, which, he says, prevent the really good driver from skidding when he wants to, and do skid just when smooth tyres would not. That, of course, is an almost exact analogy to the "aerobat," who is so skilful that he side-slips for fun, though, incidentally, the aerobic machine is to the genuine cross-country machine just about what a circus horse is to a hunter.

Now, vehicles of that sort are all very good fun for the young and enthusiastic driver, but I ask manufacturers seriously whether they would be as busy making cars and motor-cycles and piling up dividends to-day if they had continued to make machines which depended on the human element for every control and for stability as well. They know perfectly well that the present prosperity of the motor trade is due, first and foremost, and almost altogether, to the advent of the fool-proof motor, and that if the fool-proof motor had been produced ten years ago we should have had the present boom five years ago—I allow 50 per cent. slip for the mental inertia of the British public.

A Plea for a Fool-proof Machine.

Similarly, we must have the fool-proof aeroplane. Why is the Maurice Farman biplane so popular all the world over? Because it is more nearly fool-proof than any other. Will anyone try to argue that an aeroplane which was still more fool-proof would not be still more popular? The epithet "fool-proof," used in derision by the self-confident aerobat, would be in itself its best recommendation. Mr. Dick Farman himself told me some time ago that he was "not an aviator, but only a Maurice Farman pilot," and that such was the distinction made in France. The jest does not damage the sale of "Maurices" any more than does the nickname of the "mechanical cow," given to them by the R.F.C. The popularity of the "Maurice" arises from the ease with which it is controlled even in bad weather. A machine which needed no control at all in the air would be more popular still, for all naval and military pilots are not Prévosts and Pégouds, and

some of them are valuable officers though very clumsy fliers.

I only hope the Brothers Farman will progress on those lines, for in any case someone will have to do so. Even if we have to sacrifice some speed it is worth while. An inferiority of 10 miles an hour is not very dangerous, for if a 70-mile-an-hour pursuer were sighted five miles away by a mere 60-mile-an-hour machine, he would have to fly for half an hour to catch his victim, who would by then have flown 30 miles and probably be well within his own lines.

Why should an unfortunate pilot have to work all the time he is in the air? It is true the muscular work is nothing, but the mental work and nerve strain is there all the same. Just think where we should be if one had to stabilise a boat all the time, as one does an aeroplane. Why should not an aeroplane be left to itself as a boat is? Only a few weeks ago I was out in a small boat on a bumpy sea, and the thing dived and sat on its tail, and banked sideways in a way which would have scared one if it had had wings and had done it in the air; yet there was nothing to worry about, because we knew it was inherently stable.

One can quite imagine that when man first began to navigate water he sat astride a log and stabilised with broken branches. Then some clever person found that by hollowing the log and sitting inside it, one could use all one's energy for navigation and none for stabilising. Forthwith there was war between the personal stability experts, who argued that sitting inside gave one less personal control because one was so low down on the water, and the inherent stability people, who believed in conservation of energy. Flint axe-heads as arguments were quite as pointed and as rational as those used by the personal control experts to-day, but we still sit inside our boats and let them stabilise themselves. Imagine sitting outside a Dreadnought and trying to stabilise it with external gadgets, in the shape of water-aileron worked by a lever from the bridge and a series of relay mechanisms!

Incidentally, "automatically" stable machines, consisting of aeroplanes of the present type stabilised by means of gadgets such as gyroscopes, pendula, and so forth, do not seem very promising. It only means that the number of bits and pieces which *may* go wrong is greatly increased, so what is the use of them if we can do the same thing by sheer design in the surfaces and centres of the machine? One cannot help being surprised that Mr. Orville Wright and Mr. Curtiss should be wasting time on "gadget" stabilisers.

Inherent Stability Machines.

Already quite a great deal has been done in the design of inherently stable machines, but not, apparently, in this country and in France, so far as those makers who have built the greatest number of machines are concerned. Messrs. Dunne, Weiss, and Handley Page have made innumerable experiments, and such few full-sized machines as they have built have been successful—as experiments—but much more money must be spent before the right thing is produced.

One gathers that the Bristol Company have Mr. Weiss' designs on which to work, but have been too busy on standard type machines during the past year to go far with them. One hopes that much will be done with them this year, for in that direction lies ultimate success.

Mr. Page's latest biplane is good, judged by any standard, and he admits it is only designed in the direction of inherent stability, and does not go all the way. He holds that the fuselage and tail are not

LEARN TO FLY

. . . at the . . .

VICKERS

FLYING SCHOOL

BROOKLANDS.



Thoroughly graded tuition from slow Biplane to fast Monoplane



Instructing a Pupil. Note Instructor sitting behind Pupil.

Special Terms to Naval and Military Officers.

VICKERS, Limited,
Aviation Department,
VICKERS HOUSE, BROADWAY,
LONDON, S.W.

really necessary, and here he agrees with Mr. Dunne. Strangely enough, the best birds do not seem to favour the use of tails either, for the worse the flier the bigger his tail, as a rule.

Mr. Dunne says frankly that his present machine is at about the same stage in its development as was the Voisin of 1908, and one only hopes the wealthy and influential people behind the Blair Athol Syndicate will find the necessary money to push the new designs and experiments ahead with all speed in this country. It would indeed be humiliating if the Nieuport-Dunne beat the British Dunne simply by the weight of M. Deutsch's wealth.

Mr. Cedric Lee's machine, which, one is told, differs very materially in its new form from the original "dough-nut," also holds promise of increased knowledge, if nothing more, and so is well worth the money and work which may be put into it.

Our Real Rivals.

It is, however, to Germany that we must look for our real rivals in the air. Practically every machine in Germany is more or less inherently stable. The Etrich "Taube," or pigeon type, which is the same as the Weiss or Handley Page, is practically universal. The wing shapes vary. One sees straight edges to back-swept wings, as in the D.F.W. or Fokker, but the basic principle is the same.

The enormously long flights made by the German pilots—such as Herr Stoeffler's 1,350 miles in the day—could only be done on machines demanding the minimum of personal attention. Herr Roempler, the pilot of the D.F.W. now at Brooklands, tells me that on a long flight he simply takes the machine off the ground, adjusts the fixed tail-plane till the absence of push or pull on the control-wheel tells him that the weights are correctly balanced, and then leaves the machine to itself, regulating his altitude chiefly with the engine throttle. The back-swept wings, the big dihedral to the lower plane, and the upturned ailerons look after the lateral stability.

He also tells me that if he forces the nose of the machine up, it does not "stall" and fall over sideways, it simply "pancakes" forward till the weight in the nose pulls it down. If he dives, instead of continuing to accelerate, it reaches a certain speed and then flattens out again. In this action it exactly resembles the behaviour of the Dunne under similar circumstances.

One may easily realise the immense saving of the pilot's nervous energy resulting from flying a machine whose pitching and rolling causes no more anxiety than does the pitching and rolling of a well-found boat. It is, of course, true that almost any well-designed aeroplane of the present type will right itself if left alone, but most of them take too much time or space to do it; whereas the machines specially designed for inherent stability are less influenced by gusts in the first place, and right themselves more quickly when tilted in any direction. It may be taken almost as an axiom that what one gains in stability and comfort one loses in efficiency. It holds equally good in other vehicles. The racing skiff is not so stable as the fisherman's tub, and the racing car is not so comfortable as the big limousine nor as easy to hold on to on a bad road.

So I bow down to a question of whose energy is going to provide the necessary stability. Is all the engine-power to be used for lift and speed, or shall

we expend some of it in acquiring stability and so save the pilot? If aeroplanes are to become vehicles for general use, then the engine must do the work, via the comparative inefficiency of "pigeon" wings, dihedral angles to the planes, and so forth; it is very well worth it.

For remember that, when we do arrive at the really stable aeroplane, we shall have the most easily-controlled vehicle in the world. On the road one has to be careful not to take corners too fast, and to look out for side-slips. Perhaps my readers may be interested to know that only a few weeks ago the Institute of Automobile Engineers met to discuss "The Stability of Motor Cars"—has it ever struck them that motor-cars are really dangerously unstable things? On the sea one has to be careful not to let a boat fall into the trough of a sea and be swamped. In the air there is nothing to hit, nothing to swamp one, no overturning at corners—in fact, in a properly stable aeroplane which is properly built, it is quite impossible to come to grief except in starting or landing, or in a collision.

Of course, if a pilot tries to land down wind over trees he must come to grief, for he is trying to fly where there is no air to carry him, just as the most stable lifeboat cannot avoid banging on to the shore if a wave falls away from under it. Also, an inherently stable machine must not be brought near the ground with a heavy bank on, or a wing-tip may touch and produce a "cart-wheel" somersault.

Personal Control.

For this reason, designers who are working on inherently stable machines *must* remember that, however stable the machine may be of itself, it is absolutely necessary for it to have controls which will overcome its stability if need be. When on the point of landing a gust may start the machine rolling, and the pilot must then have it in his power to check the roll if he wishes. Similarly, he must be able to stop pitching longitudinally. This is only a matter of making the surfaces which ordinarily act as stabilisers sufficiently large and controllable at the pilot's will.

A Warning in Time.

It is rumoured, by those who ought to know, that the staff at the Royal Aircraft Factory are already at work on the designs, if not on the construction, of an inherently stable and yet controllable aeroplane. The more intelligent of them realise that, having produced the last word in tractor biplanes by goading manufacturers to beat the "B.E.," the true road to progress is towards inherent stability.

When Mr. Roe produced his first tractor biplane, a photograph of it appeared in this paper, which I dared to label as the type of the future. To-day that type has served its purpose and is where the box-kite was when the tractor biplane was young. In a year or two, except for racing machines and high-speed scouts, the tractor biplane as we know it will be obsolete, and we shall all be at work on inherently stable machines.

Therefore, let the aeroplane trade take notice that, unless they bestir themselves, the same thing will happen that happened at the Military Aeroplane Competition in 1912: a new and practically unknown type of machine, built by the Royal Aircraft Factory, will suddenly appear and proceed to wipe out all the manufacturers' machines. If it does, it will serve them right, for after all this they cannot say they have not been warned.—C. G. G.

A Denial.

It may be well to deny at once that urgent inquiries have been sent out by the Royal Aircraft Factory for samples of a "dope" for fabric which, in addition to being fireproof, oil-proof, and petrol proof, can be guaranteed mouse-proof,

though one of our leading dope manufacturers says that he can produce a dope which is warranted to poison any mouse immediately it begins to gnaw, thus not only frustrating these dastardly attempts on the lives of our pilots, but disclosing at once the existence of the criminals.

CONTRACTORS TO THE ADMIRALTY.

SHORT BROTHERS, AEROPLANE WORKS AND FLYING GROUNDS— EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9 MINSTER-ON-SFA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

Telegrams : " Bucheron, London."

Telephone : 3811 Hop.

TIMBER

for any type of

AIR or WATER CRAFT

Send your enquiries to

JOSEPH OWEN & SONS, LTD.,
199a, Borough High Street, London, S.E.

CELLON

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

IMMEDIATE DELIVERY OF THE BEST DOPE.

Reg. Offices :—

17, OLD BROAD STREET, LONDON, E.C.

Telegrams : " AJAWB, LONDON."

Telephone : 5359 London Wall.

Factory :—

STIRLING CHEMICAL WORKS,
CANNING ROAD, STRATFORD, E.

"EMAILLITE"

THE PREMIER DOPE
British Manufactured

"AS TIGHT AS A DRUM."

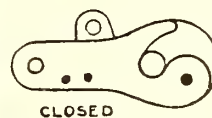
As adopted by H.M. Government and
all the leading Manufacturers.

The **BRITISH EMAILLITE Co., Ltd.**
30 Regent Street, Piccadilly, S.W.
Phone, 280 Gerrard. Wire, Santochimo, London



RELEASE GEARS for AEROPLANES

PATENT NO. 12,000-11.



CLOSED



OPEN

SPECIAL STEEL STRAINERS, EYEBOLTS
BOLTS and NUTS, ETC. ALSO ENGINE HOUS-
INGS, and STEEL TUBE WORK.

Prices and Catalogue Free.

RUBERY, OWEN & CO. DARLSTON,
SOUTH STAFFS
Manufacturers of Aeroplane Accessories.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Royal Flying Corps in 1913.—(*Concluded.*)

BY W. E. de B. WHITTAKER.

Military Wing.

During the year the Military Wing, Royal Flying Corps, has made unexpected progress for a new corps formed to deal with a science yet in its infancy and presenting problems to which experience can give the only answer. Contrary to expectations, no new squadrons were formed during the year, the Wing still consisting of four squadrons out of eight. One new station has been opened—at Montrose—and one completed—that at Netheravon. Great additions have been made to the headquarters at Farnborough, and much has been done to improve the flying ground.

Early in the year the number of aeroplanes in the possession of the Military Wing fell far below the minimum required, and, had any of our neighbours been so inconsiderate as to declare war, the resulting campaign would have been affected but little by aerial scouts on our side. There is every reason to believe that, impelled in some degree by the forceful criticisms of well-informed opponents and in some degree by the growing impatience of his military advisers, the Secretary of State for War had by the end of the year seen to the provision of sufficient aeroplanes to complete the establishment. The reserve aeroplanes in each squadron have been increased in number from one in each flight to six in each squadron, or exactly half the French allowance.

The first event of real importance during the year was the publication of the report of the departmental committee appointed to investigate the cause of accidents to monoplanes. The committee was formed in October, 1912, but its findings were not published until the beginning of February. During this space of time and for some weeks afterwards no flying was permitted on those monoplanes which were in the possession of the Army. In the report certain essential features of design in monoplanes were pointed out, and the appointment of a competent inspector of engines and aeroplanes was recommended.

The identification of aeroplanes from the ground has formed a part of the year's work. Various devices have been tried that it might be possible to recognise

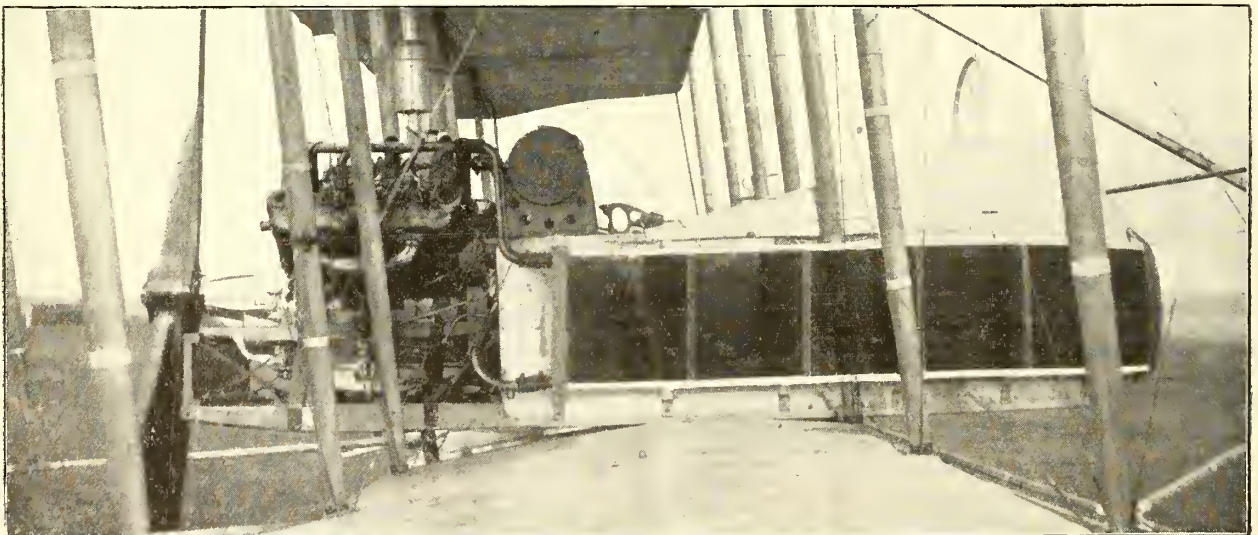
a friendly aeroplane. Broad bars in various colours have been painted across the lower planes of the machines in the hopes that such markings would be visible from the ground. But while visible at a height of 1,000 feet, all colours merge into the general blackness of the under-surface when at an altitude of 3,000 feet or more. Possibly it will be found necessary to cut sections from the trailing edges of the planes like the wards of a key. This, until a wise opponent made an accurate copy, would be a certain method of identification.

Transport is very slowly attaining its proper size. So far as one knows, no adequate arrangements have been made for the conveyance of aeroplanes by road. It is apparently assumed that, once at rail-head, aeroplanes will operate by air on all occasions.

Little has been done in regard to dirigibles during the year, and no new balloon has been built. The "Delta," after awe-inspiring trials, was at last delivered in the summer. At the end of the year it was announced quietly that the Army dirigibles were to be handed over to the Navy, the actual handi-over taking place on January 1st.

Various gunnery experiments were carried out at Shoeburyness in the summer. A machine-gun was at a later date fitted in a Henri Farman biplane on Salisbury Plain, and some experiments were carried out without the revelation of any vital and new principle. In November, at the Needles Battery, Isle of Wight, a new aircraft-destroying gun was used against kites towed by a torpedo-boat-destroyer. Considerable success attended this last experiment. Withal, aerial gunnery is still in a state of extreme infancy, and an infinity of experiments will have to be made before any real success is attained.

Aeroplanes have been employed on various occasions during the year to assist batteries of artillery in range-finding. This duty is one of the most important appertaining to aircraft in the commission of war, yet, so small is the Military Wing, it is doubtful whether under war conditions any aeroplanes can be set aside for this purpose.



The nacelle and 100-h.p. Sunbeam engine fitted on Mr. Coatalen's Maurice Farman biplane at Brooklands.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
 LONDON AERODROME, HENDON.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
 from the FARMAN BROTHERS
 for the building of
HENRY & MAURICE FARMAN

Aeroplanes AND **Hydro-Aeroplanes.**

In Great Britain and the Oversea
 Dominions.

Works and Flying Ground :
 HENDON.

Offices :
 47, VICTORIA STREET, S.W.

STILL LEADING!

Legagneux reached an altitude of

20,014 feet

(nearly 4 miles)

by using an

INTEGRAL PROPELLER



Integral Propellers are used by the
 British and all the leading Govern-
 ments of the World.

Prices & particulars from . . .

THE INTEGRAL PROPELLER CO., LTD.,
 307, EUSTON ROAD N.W.

Works: **KENILSH TOWN, N.W.** Telegrams: "Avi-prop (Eusroad), London."
 Telephone: North 912

THE **Sopwith Aviation Co.**

CONTRACTORS TO THE ADMIRALTY.
 AND WAR OFFICE

MANUFACTURERS OF
AEROPLANES AND
HYDRO-AEROPLANES.

Offices and Works:

CANBURY PARK ROAD,
KINGSTON-ON-THAMES.

Telephone
 1777 KINGSTON.

Telegrams:
 SOPWITH, KINGSTON."

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Until the autumn the administrative control of the Military Wing was carried on in a haphazard manner by various officers in the War Office who had other work to do and whose knowledge of aeronautics was, to say the least of it, not as extensive as it might have been. In July, however, a Department of Military Aeronautics was formed at the War Office with Brigadier-General David Henderson, C.B., D.S.O., as Director-General, and in the autumn this Department was in full working order.

Aeroplanes took part in the Aldershot Command manoeuvres, in those of the Irish Command, in the Scottish Command, and, in September, in the Army Exercise. In this latter series of operations forty-five aeroplanes (four of them lent by the Naval Wing) and two dirigibles took part. No serious accident occurred throughout.

In December the Inspectors suggested in the "Monoplane Report" were appointed. The Chief Inspector of Engines and Aeroplanes is Major J. D. B. Fulton, R.A. (this officer has just been created a C.B. in the New Year's Honours). Two Assistant Inspectors have been appointed, Captain Bagnall-Wild, R.E., for Engines, and Mr. Geoffrey de Havilland for Aeroplanes.

In the Army Estimates presented by Colonel Seely a sum of £462,350 was set aside for aeronautics during the financial year. Of this, the major part was absorbed in buildings, maintenance of the Royal Aircraft Factory, payment of personnel, and so on, leaving a sum of not more than £150,000 for matériel. The Royal Aircraft Factory, it would seem, is an astoundingly wasteful institution when its performances are taken into account. It has produced an exceptionally excellent tractor biplane, which, by influence, has become the most used type in the Army. The excellence of this aeroplane has been obtained at almost fabulous cost, which could only be justified if it were truly, as Colonel Seely described it, "the best

aeroplane in the world." In point of fact, its best performances have been beaten under all conditions by both the Avro and Sopwith biplanes of equal power. These aeroplanes have cost the country nothing, and can be produced at a less cost than are the mark "B.E." biplanes. This being so, the enormous expenditure of the Aircraft Factory cannot be justified. It has performed an excellent duty in inciting the trade to further efforts, and for such services one should be grateful. There can, nevertheless, be no excuse for its continuance in rivalry with commercial bodies at the expense of the country.

The station at Montrose was opened in February, and towards the end of the month five officers of No. 2 Squadron flew from Farnborough to Montrose in stages without any serious trouble. This was the first flight *en escadrille* of any unit of the R.F.C.

On September 1st and the succeeding two or three days the aeroplanes of No. 2 Squadron were flown from Montrose to Limerick (375 miles). One officer, Captain Becke, made the flight between the two points in the day, with only one stop.

One record has been set up by an officer of the Royal Flying Corps during the year. On August 19th, Captain Longcroft, with Lieut.-Col. Sykes as passenger, flew from Farnborough to Alnmouth (287 miles) without a stop. Another fine flight by Captain Longcroft was made on November 22nd, when, piloting a mark "B.E. 2" biplane (70-h.p. Renault), built by the Bristol Company, he flew from Montrose to Portsmouth and back to Farnborough without a stop.

The Royal Flying Corps has lost three officers in fatal accidents while flying during the year: Lieut. L. C. Rogers-Harrison (April 28th), Lieut. Desmond L. Arthur (May 27th), and Major G. C. Merrick, D.S.O. (October 3rd). One other officer, not in the R.F.C., Major A. W. Hewetson, R.A., was killed whilst learning to fly at a private school (July 17th).

Flying at Manchester.

Some very fine flying was seen at Belle Vue Gardens, Manchester, during three days of exhibitions by Mr. Raynham on the Avro (80-h.p. Gnome), and Mr. Hucks on his Blériot (50-h.p. Gnome). In addition there was an exhibition of aeroplanes, which included the remains of Mr. Roe's original 9 h.p. triplane, the fuselage of a 100-h.p. stationary engined Avro tractor biplane, a two-seater 80-h.p. Gnome Blériot, Mr. Hucks' 50-h.p. Gnome Blériot on which he loops the loop, some accessories, and the skeleton of an 80-h.p. Gnome propeller-driven Avro biplane.

The last will carry a gun besides the pilot and passenger. It has a span of 44 ft., a chord of 5 ft. 5 in., and an overall length of 26 ft. It is fitted with the standard Avro chassis, attached to the nacelle and not to the planes, which are fastened to the nacelle as in the standard tractor type. The speed range expected is from 35 to 70 m.p.h.

The finest flying was seen on the first day, January 1st, when some 6,000 people were present, as a heavy mist forced the aviators to fly low and keep inside the ground. The mist also caused Mr. Hucks to make the lowest loop he has yet made, the height being barely 200 ft., which caused many cases of temporary heart failure among "those who knew."

Mr. Raynham on the Avro proceeded to climb to 1,000 ft. in oval spirals, banking heavily at the turns. In the afternoon, owing to the mist, Mr. Hucks did not venture up, as he could not gauge his distance from the ground. Later a fire was lighted and Mr. Raynham made a short flight at not more than 150 ft. After some banked turns at 80 degrees, and only 100 ft. high, he landed amid much applause. In the evening Mr. Hucks lectured in the exhibition hall.

On Friday there was a drizzling rain, but a large crowd turned up. At 1.45 Mr. Raynham made a very good flight, and when the weather improved somewhat Mr. Hucks climbed

to 800 ft. and made three loops in all. Later Mr. Raynham went up to 1,500 ft., at which height he passed through banks of clouds and then landed in an exciting spiral round one wing tip.

On Saturday the weather was better and Mr. Raynham took up many passengers, among them the winners of the ballots for a free flight on the two previous days. Mr. Hucks who wished to do his 100th loop in Manchester, went up to 800 ft. and made a double loop, followed by two separate loops. The winner of the free flight ballot on this day was a lady, and Mr. Raynham gave her a thrilling flight, doing heavy banks at 800 ft. However, on landing, she expressed herself as being very pleased with her experience. Mr. Hucks then started on his final flight. On reaching 1,000 ft. he made a triple loop, a double one, another double one over the centre of the ground at only 350 ft., and finally he completed his 100th scientific loop amidst great excitement. On landing he was "chaired" and then driven round the ground, to the huge delight of the crowd. The day ended with more passenger flights by Mr. Raynham.—C. R. T.

Stabilising by Automatic Machinery.

Certain newspapers have devoted during this week a large amount of attention, without very much explanation, to Mr. Orville Wright's stabiliser for aeroplanes. It will be well to reserve any opinion as to whether the invention is going to revolutionise flying or not, till one knows considerably more about it. In the meantime, one must remember that anything of this nature means so much complication added to the machine, and, therefore, so many more things to go wrong. As an addition to existing machines it may be very useful, but it does not alter the fact that the machine of the future must be inherently stable because of its aerodynamic design, and not because of any additional fittings.

ACCLES & POLLOCK, LIMITED

OLD BURY, BIRMINGHAM. Send for 25 x 20 Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK. OUR SPECIALITY. ONE QUALITY—THE BEST.

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**

FOR **AEROPLANES.**

DOPE WITH
NOVAVIA

9, Coral Street, W.C.

THE DOPE

TRADE MARK **TABLOID' BRAND ADJUSTABLE
HEAD DRESSING, Compressed (Regd. Design)**

Cap-like, instantly applied without skill,
stays in position, washable.

Aviators should carry it in readiness

10d. each, complete. All Dealers.



BURROUGHS WELLCOME & CO., LONDON



THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts
should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

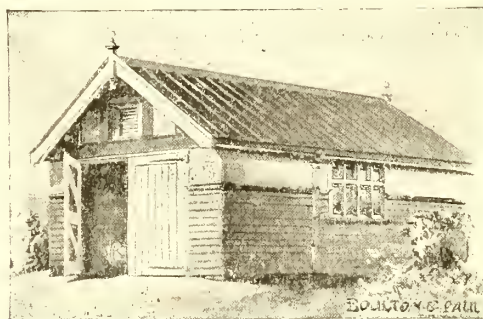
SPARS and all
BOOMS AEROPLANE
PARTS to
makers' own designs

Send us your Requirements and let us quote for you.

**R. CATTLE, STRUTS
SKIDS**
Machine Woodworking
to the trade,
27 Wybert St.
Stanhope St., N.W.

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manu-
facture of portable Wood and Iron Buildings for
all purposes. Always made from best materials,
and constructed in perfect fitting sections for
easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

**PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR
HOUSES, CYCLE HOUSES.**

GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality
ON ADMIRALTY AND WAR OFFICE LISTS

COAN
CASTS
CLEAN
CRANK
CASES

R. W. COAN
219,
GOSWELL
ROAD,
LONDON, E.C.

Telegrams—
Krnka-es,
Lning,
London.

Telephones—
3846 City
4879 Central.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," War Office, Jan. 2, Regular Forces:—

Royal Flying Corps, Military Wing.—The following Flying Officers to be Flight Commanders: Capt. G. S. Shephard, Royal Fusiliers (City of London Reg.); Lieut. E. V. Anderson, Black Watch (Royal Highlanders), and is granted temporary rank of Captain; Lieut. F. F. Waldron, 19th (Queen Alexandra's Own Royal) Hussars, and is granted temporary rank of Captain (Jan. 1); Lieut. R. M. Vaughan, Royal Inniskilling Fusiliers, from the Reserve, is appointed a Flying Officer, and to be seconded (Dec. 18th, 1913).

Special Reserve of Officers:—

Royal Flying Corps, Military Wing.—Sec. Lieut. S. P. Cockerell, from London Balloon Company, R.E., T.F., to be Sec. Lieut. (on probation) (Jan. 3rd)

Admiralty appointments, Dec. 30:—

Royal Marines.—Captain (R.M.L.I.) Powen to the "Pembroke," additional for service at the Central Air Office, Sheerness Sub-Depot, temporary, on the "Hermes" paying off.

Admiralty appointments, Jan. 2:—

Lieutenants.—E. T. R. Chambers, H. A. Williamson, and R. J. Bone, all to the "Pembroke," additional, for Isle of Grain Naval Air Station, temporary, as Flying Officers, to date December 17th.

Royal Marines.—Lieut. C. H. Collet, R.M.A., and Capt. C. F. Kilner, R.M.L.I., both to the "Pembroke," additional, for Isle of Grain Naval Air Station, temporary, as Flying Officer, to date December 17th.

Royal Naval Reserve.—Lieut. E. R. C. Nanson, to the "Pembroke," additional, for Isle of Grain Naval Air Station, temporary, as Flying Officer, to date December 17th.

Probationary Sub-Lieut.—I. H. W. S. Dalrymple-Clarke, confirmed as Sub-Lieut., to date July 1st, and to the "Pembroke," additional, for Isle of Grain Naval Air Station, temporary, as Flying Officer, to date December 17th.

NAVAL.

From the "Times," Jan. 3rd:—"A marriage has been arranged, and will shortly take place, between Commander Neville Florian Osborne, R.N., R.F.C., third son of Captain and Mrs. Osborne, of Dunlea, Queenstown, Ireland, and Helen Monteith, eldest daughter of Vereker Monteith Hamilton and Mrs. Hamilton, of 6, St. Albans Mansions, Kensington Court, W."

Lieuts. Ennis T. R. Chambers, Hugh A. Williamson, Reginald J. Bone, and Eric R. C. Nanson, R.N., Captain C. F. Kilner, R.M.L.I., and Lieut. C. H. Collett, R.M.A., who passed the course at the Central Flying School, Upavon, which commenced on September 17th, 1913, are now graded as flying officers, dated December 17th, for temporary service at Isle of Grain Air Station. Sub-Lieutenant I. H. W. S. Dalrymple-Clark, R.N.R., who passed through the same course, is temporarily appointed to Grain, and graded as flying officer.

The recent appointment of so many officers of the Naval Air Service to the Isle of Grain Air Station suggests that among the various developments now taking place in the Naval Air Service it may be intended that the Isle of Grain shall become the chief training station for the pilots of seaplanes. Apart from the fact that as a place of residence Grain is exceedingly unhealthy, the choice is a good one, for the comparatively protected water of the Thames estuary, which is at the same time very free from high land which might cause dangerous air currents, is particularly suitable for the training of water flyers. So far as the pilots are concerned, the unhealthiness of the ground may be counteracted by the altitudes they reach daily when flying, but one fears that those who do not fly are likely to suffer from all the ills contracted by those who dwell on low-lying, damp ground.

This apparent aggrandisement of the Isle of Grain leads one to consider the future of Eastchurch. It is becoming evident that its utility as a training ground for Naval pilots is departing. The Navy has paid half the cost of the Central Flying School, and it therefore seems natural that

in future the greater number of officers on probation for the Naval Air Service should be sent to Salisbury Plain so that the Navy may get value for its money. When they finish there they are necessarily accomplished pilots on land machines, and it can only be necessary for the Navy to train them to fly seaplanes, which will presumably be done at the Isle of Grain. But on the other hand, Eastchurch has advantages to offer as a station for one of the squadrons of the Royal Flying Corps, Military Wing, especially for carrying out experiments with bombs and armed aeroplanes. It would, therefore, appear a simple matter to hand the whole of the Naval establishment at Eastchurch over to the Army, who would walk into excellent ready-made quarters for men and machines. The recent prolonged visit paid to Eastchurch by several officers of No. 3 Squadron R.F.C., may have something to do with such an intention.

It also appears as if in the natural course of affairs the Naval Air Service, or at any rate that section of it dealing with coast defence air stations, will in due time absorb the old Coast Guard Service. Already several Coast Guard stations are being taken over as quarters for the men of the Air Service. At the moment the Coast Guard Service has very little to do, but we may at any moment become a tariff protected country, and in such an event smuggling by aeroplane would doubtless become a remunerative industry, and then many of the duties of coast guard patrol work would in peace, as well as in war, devolve on the Naval Air Service.

One gathers that the question of abolishing the Royal Garrison Artillery and handing their forts and guns over to the Navy is now under discussion, so it is quite possible that this service also might become part of the aerial coast guard's work, for it seems only natural that the operation of anti-aircraft guns, which will be essentially part of our coast defence work, should also come within the sphere of influence of those whose business it is to operate aircraft.

At the Naval Flying School at Eastchurch on Monday Sub-Lt. Rainey, R.N.R., made many flights with visitors and the school naval working party. Capt. Courtney, R.M.L.I., flew on Short 65. Owing to the intense cold the pilots could not stay aloft long as the feed pipes were freezing. The same pilots were again out on the 31st, Mr. Rainey making two long flights on Sopwith 87. Capt. Courtney also had a short flight on the same machine. Later Capt. Courtney took up the Anzani Dep. 36, but it was too cold to do much.

On Thursday 1st, Sub-Lt. Rainey, R.N.R., on Bristol tractor 43, was doing some good flying, taking up blue-jackets as passengers in the morning, fog stopping any further flying.

MILITARY.

Army orders for January contain sanction for the formation of an Inspection Department for aeronautical material under the direct control of the Director-General of Military Aeronautics. There is to be a staff of one chief inspector, one inspector of aeroplanes, one of engines, two assistant inspectors, and a subordinate staff of chief examiners, examiners and writers. Headquarters are to be at South Farnborough.

So far as one can gather at present the new Inspection Department of the Royal Flying Corps will take over, in addition to the inspection of machines in the possession of the Royal Flying Corps, the duties hitherto performed, or which should have been performed, by the staff of the Royal Aircraft Factory. That is to say, the inspection of parts of machines under construction to Government design by contractors, or to makers' own designs, will be carried out by officials of the new department, and the completed machines will also be passed by them. This will, one imagines, be highly satisfactory to all makers who are building for the Army. It is said that the nucleus of the inspecting staff will be formed by men chosen among the inspectors already employed by the Royal Aircraft Factory, but one may safely opine that those in control will select only the men best qualified.

It is reported that during the past fortnight orders have been given out to various aeroplane constructors for a considerable further number of Mark B.E. biplanes. It does not appear that corresponding orders have been issued for British aeroplanes of any constructors' own designs despite the fact that there are those which surpass the B.E. in efficiency. It hardly seems advisable to continue ordering B.E.'s in large quantities, especially when many of those on order are still undelivered, in view of the fact that the type is now practically obsolete.

The erection of the sheds at Montrose is progressing more quickly than is apparent. Most of the sections are being made in a workshop and will require very little time to be bolted into position.

Brigadier-General F. G. Stone, who retired under the age limit on the 4th inst., entered the Royal Artillery in 1876 from the Royal Military Academy. He served in the Afghan War, 1878-79, and the Boer War, 1901-2, commanded the 1st Heavy Artillery Brigade, Aldershot, 1906-8, and the Royal Artillery, South-Western Coast Defences, 1910-14. He was a pioneer of aeronautics in this country, being one of the oldest members of the Aeronautical Society. He has done much to interest military officers in aviation, and is a writer on military matters. One hopes that his retirement from the active list will allow him to give more time to advancing the cause of aeronautics, and that he will be seen with greater frequency at the Aeronautical Society's meetings, where his sound and lucid arguments have so often added greatly to the value of the debates.

BURKE.—On Jan. 3rd, at Dubton House, Montrose, the wife of Major C. J. Burke, the Royal Flying Corps and the Royal Irish, of a son.

FRANCE.

With the New Year has come a series of promotions in the French Army. Among the aeronautical officers promoted are Lieut.-Aviator de Malherbe, to be Captain, Capt. Destouches, to be Chef de Bataillon, and Lieut.-Aviator Rémy, to be Captain. Lieut.-Col. Vover, commanding the first Aerostation Group at Versailles, has been promoted Colonel.

The flying personnel (including dirigibles as well as aeroplane pilots), has been raised at the beginning of the year to 169 officers and 200 N.C.O.'s.

In the French Senate on Dec. 20th, the necessary credits were voted for the maintenance of the new Directorate of Military Aeronautics at the Ministry of War without a discussion. The old Permanent Inspection of Military Aeronautics was abolished formally at the same time.

The escadrille stationed at Casa Blanca, in Morocco, has rather escaped attention in the French papers of late, but this neglect does not indicate any lack of work on the part of the aviators attached. In the first five days of December the pilots of the escadrille flew 1,550 miles without trouble. The machines used are all Blériot monoplanes (80-h.p. Gnome). Captain Hervé and Quartermaster Peretti each flew to Fez and back, 370 miles, Quartermaster Feisterstein flew over a circuit, starting from Casa Blanca to Marrakesh, Mogador and back, 460 miles, and Lieut. de la Morlais flew to Marrakesh and back, 320 miles. These flights are but an example of what takes place daily.

Capt.-Aviator Peralda, O.C. Aviation Centre at Douai, flew across that town at 10 a.m. on the last day of the old year, and dropped a number of leaflets bearing the inscription: "Aboard the avion Picardie, sincerest wishes for 1914—Captain Peralda." The populace were ravished with joy and humility at this phenomenal kindness.

There is trouble in Indo-China. It is desired that an aviation centre for aeroplanes and hydro-aeroplanes shall be formed in Cochin China (the other name of that delectable land), and it appears that one strong party in the country desires that it should be opened at Saigon. On the other hand the military government favour Hanoi. So far as we in this part of the world are concerned, it is simply the matter of the æsthetic appearance of a name, and I prefer Hanoi.—W.

DENMARK.

Several Scandinavian aviators have lately been in Paris. From Denmark the Marine aviators, Lieut. Hoeck and Ullditz and the Military aviators Ussing and Grut. They have visited the Aero Show and the different aerodromes, and at

Farman's in Buc, they were shown the latest models. Lieut. Hoeck, who is at the school of the Franco-British Company at Vernon—has had an accident, smashing up his machine by a fall from 300 ft.; he himself was only slightly injured, and hopes to leave the hospital in a week.—Hi.

SWEDEN.

The directors of the Swedish Aircraft Factory, Scania-Vabis, Baron Cederström and Versin, have studied the Aero Show and bought several flying machine parts.

The well-known aviators Ask, Thulin, and Capt. Sundstedt, are there also, the latter, who was, as will be remembered, the passenger of Chevillard during his flight in Sweden, has been presented with a Henry Farman biplane by a friend, and next spring he will fly it to Sweden by the airway.

An artist, Zorn, has given £11,050 to the Army to buy aeroplanes for it.

Sweden has now two aircraft factories. Besides that at Södertelje, which is a department of the well-known Scania-Vabis auto-car factory at that place, there is another at Stockholm, "Svinska Airoplankons ortict" (Swedish Aero Factory, Lim.), which for the Army built a monoplane designed by Engineer Fjallback. The other day the well-known military aviator, Lieut. v. Porat, flew the monoplane over to the military flying ground at Malmö to show it to the authorities.—Hi.

ROUMANIA.

Roumania some time ago realised the importance of an adequately equipped aviation corps, the necessity for which was strikingly emphasised in the recent Balkan War, and of late further large contracts have been placed with the British and Colonial Aeroplane Co., Ltd., for Bristol aeroplanes. In the early part of last year twelve officers of the Roumanian Army were sent to England for instruction at the Bristol schools, where they passed for the R.Ae.C. certificates. These officers form the nucleus of the Roumanian flying corps, and have a goodly supply of Bristol school biplanes, school monoplanes, and fast monoplanes, as well as some of the latest 80 h.p. tractor biplanes. Under their instruction a large number of officers have been, and are still, being taught to fly.

Besides instructing pupils these officers put up quite a lot of cross-country flights. Capt. Popovici has made several trips of 200 miles and over with a passenger, and with Lieut. Pascanu as passenger, this officer in an 80 h.p. Bristol tractor biplane, flew to Botosani and back, a total of 750 miles. Lieut. Beroine reached 3,500 ft. on a similar machine, with full load and passenger, and on the following day took one of these machines to 12,000 ft., flying for about an hour. Lieut. Pascanu, who was one of the Bristol pupils, made several fine flights on the same day, two of them being cross-country, for two hours each.

On December 21st, Capt. Popovici went for a cross-country circuit, and covered 83 miles in 50 minutes, being at the rate of just over 100 miles per hour.

Such flying as this has naturally created great enthusiasm for Bristols, and at every available moment the pilots are out on them.

U.S.A.

Mr. Josephus Daniels, Secretary of the Navy, speaking in St. Louis on Nov. 20, on aerial defence, emphasised the importance of aircraft in modern war, and put in a strong plea for the improvement of the U.S. services in this respect. The Army, he said, musters seventeen aeroplanes, with seven more in sight; the Navy possesses four hydro-aeroplanes and three flying boats, and it is proposed to buy three more. With these figures he compared those of France, which he gave as 600 aeroplanes, 900 pilots, 19 dirigibles, and 400 balloon pilots. The existence of the Panama Canal, he added, makes this improvement of U.S. service aviation a very urgent matter.

Mr. A. B. Lambert, of St. Louis, who is organising a U.S. Aviation Reserve, is highly gratified with the success of his scheme. Applications are coming in from all parts of the country, both from pilots and mechanics.

The fatal accident to two U.S. Army officers at San Diego was reported in November. It now appears that while Lieut. Eric L. Ellington was instructing Lieut. Hugh M. Kelly on a

new six-cylinder dual control machine, the latter got out of hand at a height of 80 ft., during a normal-looking glide. Both officers were killed. According to Mr. Lincoln Beachy, the accident was caused by switching on the engine during a long glide at an altitude too low to permit the correction of the disturbance (probably unexpected) thus caused. Lieut. Kelly was unfamiliar with the machine.

At Manila, Philippine Islands, on Nov. 14th, Lieut. C. Perry Rich was killed, his hydro-aeroplane falling into Manila Bay.

FOREIGN NOTES.

France.

"Scientific looping" flights took place during the week at various places. The pilots were M. Chevallard (Henri Farman biplane) at Orleans and Rouen, M. Pégoud at Milan, and M. Garros at Saint-Raphael, among the many whose efforts were not reported.

M. Audemars has no intention of either flying to Switzerland or of travelling to Mexico. Mexico does not attract him at the moment owing to the amount of rifle practice prevalent in that country, and he does not desire to be shot for some time to come.

M. Guillaux intends to go to Avignon shortly that he may "loop the loop" at that place on a monoplane and on a biplane.

Madame Pallier intended to make an effort to beat Madame de la Roche's performance for the Coupe Femina, but owing to the inclement weather was prevented doing so before the end of the year. Hence Madame de la Roche remains the winner for 1913.

M. Arnold Legras is taking a Voisin biplane (100-h.p. Renault) to Monaco. This machine is a three-seater, and M. Legras intends to start a passenger service early this month.

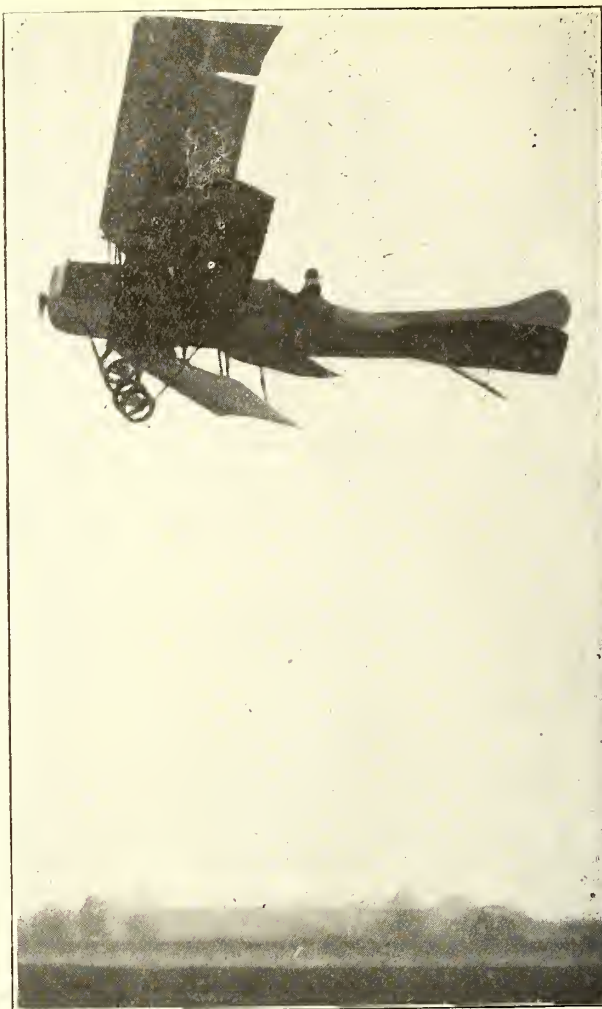
M. Salmel, the newspaper aviator, also intends to carry on an aerial post on the Riviera between Hyères and San Rémo. He will alight en route at Nice and Cannes, and will drop post bags at other towns. His machine will be a waterplane. The "Daily Mail" supplies the enterprise and the money. One regrets that patriotism did not also play a part and decree that a British waterplane should be used to demonstrate to the notabilities of many nationalities congregated on the Côte d'Azur at this season, that Great Britain can build aeroplanes.

M. Garros (Morane-Saulnier monoplane) and M. Bielovucic (Ponnier monoplane) are at Saint-Raphael preparing to make attempts on the height record.

Various papers seem to be inclined to boom as one of the great events of 1914 the Monte Carlo Aeroplane "Rally," in which aviators from all parts of Europe are to arrive at Monaco by air. Those arriving via Toulon or Genoa are supposed to come by seaplane, but nothing is said about what is to happen to those coming from other places. The absurdity of the omission lies in the fact that most of the acreage of the Principality is vertical, or exceeding 45 degrees, and there is not an area bigger than a tennis court sufficiently level for a shoregoing aeroplane to land on it. Also, except by sea, it is impossible to approach Monte Carlo without flying over many miles of mountains among which engine failure would mean almost certain death.

Germany.

A German military paper publishes tables of the working of the Zeppelin passenger airships in 1913. Details not being available for the military vessels, the statistics deal solely with the "Viktoria Luise," "Hansa," and "Sachsen." "Hansa" made 210 trips on 148 days, covering 25,000 kms. and carried 4,086 persons, 2,615 being members of the crew (i.e., the same people over and over again), and 1,471 passengers. The "Sachsen," which made its debut in May only, has done 206 trips on 127 days, covering 22,000 kms., and the "Viktoria Luise" made 400 and odd tours. Figures are obtainable only for the first 160 journeys, when a distance of 16,000 kms. was covered and 3,439 persons conveyed. Besides this, all three airships have been used extensively of late for military tests, and a very tidy mileage would have to be added for this. So far as the tables show, the three passenger vessels conveyed together 12,382 persons and covered close on 60,000 kms.



The D.F.W. biplane (100-h.p. Mercédès) flying at Brooklands

Germany's aerial events for 1914 increase constantly in number and importance. A three-cornered cross-country competition from Johannisthal to Leipzig-Mockaw and Dresden is to last for a week in July and the prizes amount to £5,000. Exhibitions and competitions take place on each of the flying grounds. Another competition has received the poetical name "From Mountain to Ocean," and starts, as at present arranged, in Munich, leading to Kiel via Leipzig and Berlin. It is possible that the contest will be extended to Scandinavia.

The young Ago pilot, Richard Remus, who had an accident near Johannisthal last week, succumbed to his injuries at the age of twenty-two. Remus was serving his time with the first company of the Doeberitz aviation troops.

K. H. Bernius accomplished a five-hour flight for the National Aviation Fund prizes on December 29th on a Wright machine. He started from Johannisthal in a strong storm and crossed and re-crossed the Havel lakes and their surroundings.

In honour of Count Zeppelin's seventy-fifth birthday, the Friedrichshafen civic authorities have resolved to found a Zeppelin Museum, and are collecting all documents, mementos; in fact, everything appertaining to the Count.

The list of German New Year's Honours includes that of Alfred Friedrich, who was awarded the silver Cross of Merit for his flight—Berlin-Paris-London-Berlin.—B.

Italy.

The last days of the year saw some fine flying at Taliedo, the occasion being the acceptance trials of four H. Farmans

built by the Savoia Co., who are now getting into full swing, as I stated a few numbers back. Unfortunately, few except the invited seemed to know of the presence of M. H. Bille, a Farman pilot of renown (outside Italy), who had the task of putting the machines through their paces. This he did very effectively, assisted by Signor Signorini,—Fischer's passenger in the Lakes Circuit and now official pilot to the firm.

An inherent stability machine with two Gnômes is heralded from Mirafiori, where I hope to examine it within the week.

Cevasco arrived at Rome, showing incidentally that the Neri propeller, which I described in connection with the last show at Turin, can pull.—T. S. H.

The officer commanding military aeronautics in Italy visited the Farman headquarters at Buc on December 30th and examined a number of new machines.—W.

Spain.

A new Maurice Farman biplane (100-h.p. Renault) was tried last week at Buc before delivery to the Spanish Army.—W.

Russia.

M. Sikorsky has now designed, built and tested an enormous biplane weighing $3\frac{1}{2}$ tons and fitted with four 100 h.p. Argus engines. Sleeping cabins are fitted in addition to the ordinary cabin, which is similar to that on the earlier "giant." The general dimensions of the machine are:—Length, 20 metres (65 ft.); span, 37 metres (125 ft.); bearing surface, 182 metres carrés (about 1,820 sq. ft.). The chord of the planes is 2m.80 (9 ft.), as is also the gap. The propellers are 2m.60 (8 ft. 6 in.) in diameter. In the preliminary trials on Christmas Day the biplane rose in 100 yards and flew well for some laps of the aerodrome.

Egypt.

M. Bonnier and his mechanic left Jerusalem on January 1st and flew to Port Said, where they landed for a time. Leaving again for Cairo, they met M. Marc Pourpre on a Morane-Saulnier monoplane (60-h.p. Gnome), who had flown to greet them. Directed by him they flew to the Heliopolis polo ground, where they landed shortly after 5 p.m. Olivier was in the air on a Henri Farman biplane (80-h.p. Gnome) at the time, and Védrières was present to receive the newly arrived.

Mr. Frank McClean, accompanied by Messrs. Horace Short and Alec Ogilvie and a mechanic, left Alexandria on his Short seaplane (160-h.p. Gnome) and flew oversea to Rosetta and thence by the Nile to Cairo, alighting there at 1.15 a.m., having been delayed one hour on the way. The total flying time was just under three hours.

M. Bonnier intends to fly from Cairo to the Cape if the arrangements of the Ligue Aérienne are adequate. M. Védrières, who refused to do so, intends to travel in the Far East by aeroplane. He says he will "loop the world" in preference to "looping the loop."

M. Marc Pourpre (Morane-Saulnier monoplane, 60-h.p. Gnome) left on his Cairo-Khartoum flight at 9 a.m. on January 4th. He intended the first stage to end at Luxor, but owing to motor trouble landed at Menshab, 300 miles from Cairo, having averaged 75 m.p.h.

Persia.

M. Kouzminsky, whose aerial prowess delighted the unemotional Chinamen during last year, is now at Teheran. On January 4th, flying a Blériot monoplane (80-h.p. Gnome), he left the Kasr-i-Kajar Palace, flew to the Cossack Parade Ground, four miles, and made a series of exhibition flights before the Shah, the Regent, and the Ministers of State. He flew over the town at a height of perhaps 100 feet and then landed, smashing his machine almost completely.

The Late Hubert Latham.

The body of Hubert Latham, who was killed in June, 1912, while big game shooting in Central Africa is, after lengthy and tiresome official formalities, now being brought back to France. The ship conveying his body is due to arrive at Le Havre on January 11th, and he will then be buried in the family vault in that town.

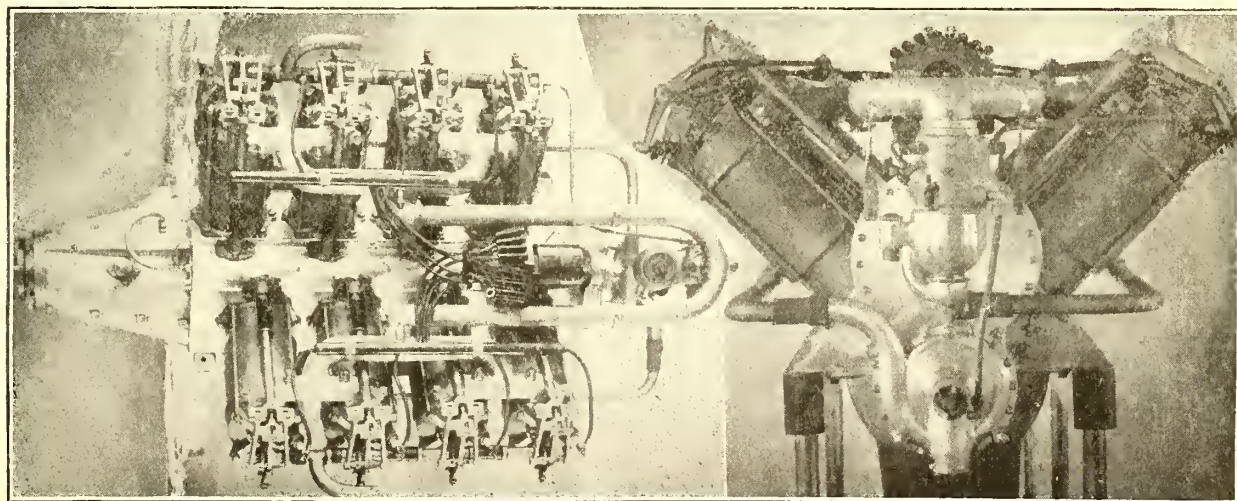
The Aeronautical Society.

OFFICIAL NOTICES.—The fifth meeting of the forty-ninth session will be held on Wednesday, January 21st, at 8.30 p.m., when Sir Alfred Keogh, K.C.B., F.R.S., will preside. Mr. Leonard Bairstow, A.R.C.Ss., will read a paper, to be followed by a discussion, on "The Stability of Aeroplanes," illustrated by experiments with paper gliders. Members are reminded that, under the Rules, they may introduce visitors to general meetings. Tickets for visitors, not introduced, may be obtained from the Secretary, 11, Adam Street, Adelphi, W.C.—BERTRAM G. COOPER (Sec.).

The Edinburgh Aeronautical Society.

Mr. G. T. Cooper, Hon. Sec. of the above society, writes: "In this week's *AEROPLANE* there is in your review of 1913 a paragraph stating that the flying club instituted by the Governors of the Northampton Polytechnic Institute was the first of a co-operative nature in which members were to build and fly aeroplanes. May I beg to differ, as our society has been running an aeroplane during the whole of the past summer and built it the previous winter. The aeroplane actually belongs to me, but any member of the society is entitled to use it, as it is one of our advantages of membership.

"When I also say that they have use of a glider, a sand yacht, a workshop, a reading-room, an excellent library, a lecture every month during the winter, including one by Mr. Ewen, The Aerial League, Capt. Longcroft, etc., and visits to Naval air station, etc., and all for £1 1s., I think we may claim to do as much as any other society in the United Kingdom."



The model O.X. 100-h.p. Curtiss engine, which has given such a good impression to the best judges in this country and abroad.

New Year's Honours.

For the first time the list of New Year's honours contains the names of officers of both Services to whom honours have been granted on account of aeronautical service.

A supplement of the "London Gazette," issued Dec. 31st, contains the following:—

"The King has been graciously pleased to give orders for the following promotions in and appointments to the Most Honourable Order of the Bath:—

"To be Ordinary Members of the Civil Division of the Third Class, or Companions, of the said Most Honourable Order: . . .

"Captain Godfrey Marshall Paine, M.V.O., R.N.

"Captain Murray Fraser Sueter, R.N. . . .

"To be Ordinary Members of the Military Division of the Third Class, or Companions, of the said Most Honourable Order: . . .

"Brevet Major Hugh Montague Trenchard, D.S.O., Royal Scots Fusiliers, Assistant Commandant, Central Flying School, Royal Flying Corps.

"Major John Duncan Bertie Fulton, Royal Artillery, Chief Inspector, Inspection Department, Royal Flying Corps. . . .

"The following Lieutenants have been promoted to the rank of Commander in his Majesty's Fleet: Neville Florian Osborne, dated January 1st, 1914. . . ."

These well-merited rewards for good service will naturally cause the greatest satisfaction among all connected with Naval and Military aeronautics.

Captain Godfrey Paine, R.N., who has been Commandant of the Central Flying School since its formation, has brought that establishment to a wonderfully high state of efficiency, largely accounted for by the high personal regard in which he is held by officers and men alike. Gifted with an unlimited capacity for hard work, Captain Paine sets an example which has resulted in the amount of work done at the Central Flying School far exceeding expectations. It is recorded unofficially that on occasion he has succeeded in getting as many documents signed at the War Office in one afternoon as in the ordinary course would take about three weeks to get through that complicated establishment. Captain Paine is himself an aviator, and his judgment of machines is as sound as his judgment of men.

Captain Murray Sueter, R.N., has a fine record as Director of the Air Department of the Admiralty, where, assisted by a well-chosen and enthusiastic staff, he has brought into being in one year an organisation for the Naval Air Service such

as even the most sanguine of us scarcely dared to expect. These results have only been achieved by great personal sacrifice on the part of all the officers concerned, and by working at exceedingly high pressure. One may safely prophesy that during the next few years the outcome of this work will become evident in the enormous expansion of the Naval Air Service which is now taking place. The honour given to Captain Sueter may be taken as a compliment to the whole of his staff.

Brevet-Major Trenchard, D.S.O., as Assistant-Commandant at the Central Flying School, has been Captain Godfrey Paine's right-hand in the building up of that establishment. An organiser of the first class, with a splendid Service record behind him, the honour is thoroughly deserved, for on him has fallen the onerous duties of Staff Officer with the attendant worries of inculcating a proper spirit of discipline into what might, owing to the irregular nature of the work, have been a far less orderly establishment.

Major Fulton, R.A., recently appointed Chief Inspector of the new Inspection Department of the Royal Flying Corps, was one of the first officers of either Service to fly, having worked on his own account during 1909 with his own Blériot monoplane on Salisbury Plane, doing all his own repairs after every smash. He took his aviator's certificate on Mr. G. B. Cockburn's biplane, the first Henry Farman ever built, and he was the first officer to take the Royal Aero Club's Superior Certificate for cross-country flying. He is by nature a mechanical engineer of considerable ability, and prior to taking to aviation he invented several improvements in artillery which were adopted by the War Office. He was one of the first instructors in flying to be appointed at the Central Flying School, and recently has had entire charge of the inspection and repair of aeroplanes and engines there. There is probably no one in either Service whose knowledge of aeroplanes and their motors is more intimate, nor could a more fitting appointment have been made.

Commander Neville Osborne, R.N., is the Navy's most experienced pilot of dirigibles. He was one of those who was appointed to deal with the unfortunate "Mayfly," and ever since the Navy began operations with dirigibles at Farnborough he has been continually at work on their various airships, beginning with the "Beta" and the little "Willows" two-seater, and continuing with the modern "Astra-Torres" and "Parseval." He is recognised as one of our leading authorities on the subject of airships.—C. G. G.

The Conspiracy Against National Safety.

The respective agitations in favour of, and against, a strong Navy, affect the readers of this paper, in that they affect the Naval Air Service, therefore the following pronouncement by the Navy League is entitled to every consideration.

"In view of the aggressive action of the joint factions of peacemongers, anti-Imperialists and 'Norman Angellites' in their joint attack upon the financial provision which is absolutely essential for the maintenance of the fleet for the world-wide defence of the Empire, the Navy League is making a special appeal to all the Lord Mayors and Lord Provosts, Mayors and Provosts and Presidents of Chambers of Commerce throughout Great Britain to assist them in the organisation of meetings to place the gravity of the problem of the naval defence of the Empire before the people of the country.

"The Navy League will be glad to receive communications from volunteer helpers in Great Britain who are willing to assist in the organisation of meetings, and who will act in their respective districts as protagonists of a big Navy policy. The Navy League will be able to place actively at work a large staff of speakers for the purpose of this campaign, whose services will be available wherever they are required." The address of the Navy League is 11, Victoria Street, S.W.

A Change of Occupation.

It is with very mixed feelings that I hereby announce that Mr. W. E. de B. Whittaker has left the staff of this paper in order to take over the business management of Mr. Gustav Hamel's aeroplane exhibitions. For my late colleague's

sake I am glad, for there is every prospect of the arrangement proving financially beneficial to both Mr. Hamel and himself. For my own sake I feel much regret at losing the co-operation of one who has worked with me for exactly two years. I cannot recall that we have ever agreed on any of the many subjects with which we have dealt, and this unfailing diversity of opinion has, I believe, resulted in *THE AEROPLANE* being singularly free from bias, and always ready to give various views of any question. Happily it has been possible to arrange that Mr. Whittaker shall continue to contribute his usual weekly article on the Service side of aeronautics, concerning this country and others, and as his new sphere of operations will take him more into the world than when he was more or less tied by routine work, it is probable that these articles will increase rather than diminish in interest. Incidentally, it will be acknowledged that Mr. Whittaker has performed something of a feat in turning out 104 consecutive articles at the rate of one a week on a subject so obviously restricted as that of Service aeronautics, and I think I may safely congratulate him on the fact that though his views may have on occasion been wrong, his article has never been dull, for even the driest subject has always been relieved by an illuminating phrase here and there, which has repaid one for the reading. The accuracy of his powers of observation has been shown by the way in which his prophecies have worked out in practice. I hope that his new activities will not, at any rate for a long time, distract his attention from the particular phase of aviation which he has made particularly his own.—C. G. G.

The French National Fund Scandal.

In "L'Aero" of December 31st there appears a long report from Chalais-Meudon as to the number of aeroplanes supplied by the National Fund to the Army. This Report is in the nature of a reply to the criticisms directed against the fund by M. Esnault-Pelterie, President of the *Chambre Syndicale des Industries Aeronautique*. The National Committee take great exception to the clause in M. Robert Esnault-Pelterie's letter in which he says "that the 114 avions have not been bought from the constructors, and that the plaques of the National Committee have been fitted to machines already in the possession of the Government." The report states that this paragraph is wholly wrong, and that in place of 114 avions, 208 have actually been given, of which 171 were in service on October 16th, 1913. The Committee denies emphatically that the name-plates have been fixed to any machines other than those actually purchased for the Army by the National Fund. The avions bought out of the National Fund have been ordered specially to the Committee's account, and the plates have been affixed, not by Government officials on their own initiative, but under the direct orders of the Committee itself.

It appears that M. Robert Savary, the constructor, acting as delegate for the *Chambre Syndicale*, obtained and supplied a list of aeroplanes delivered to the Army by different aeroplane manufacturers. This list has been published, and, consequently, was open to an answer. The National Committee observing that the figures given did not coincide with those supplied on different occasions by M. Millès-Lacroix, by General Bernard, and by the Military establishment at Chalais-Meudon, at once decided to obtain a more definite report from Chalais-Meudon. This list was given freely, and is published in the Report. Each firm is dealt with in turn and in detail giving the orders and deliveries. It is unnecessary to reproduce these sectional items, as an excellent recapitulation is printed, showing deliveries as estimated by M. Savary, and as taken from the reception-book at Chalais-Meudon.

	1912	1912	1913	1913
	Chamb.	Chalais-	Chamb.	Chalais-
	Synd.	Meudon	Synd.	Meudon
	—	—	—	(Ordered.)
Blériot	66	89	62	92
Breguet	20	32	21	18
Borel	8	15	18	20
Caudron	4	6	20	24
Deperdussin	24	38	32	41
H. Farman	20	21	42	84

Happenings at Brooklands.

During the past week there has been a considerable amount of activity at and from Brooklands. On Tuesday, Mr. Pixton flew the sixth of the Army's Sopwith biplanes (50-h.p. Gnomes) to Farnborough with Lieut. Mapplebeck, R.F.C., as passenger. To avoid the bad country by Woking, Mr. Pixton generally makes this journey by Guildford, and on this occasion the engine failed, so that they were compelled to come down close to Lord Northcliffe's place, Sutton Court. Lady Northcliffe kindly invited the aviators to lunch, but they were reluctantly compelled to decline, and continued their journey to Farnborough as soon as possible. During the Thursday afternoon Mr. Pixton put the machine through her tests, the high speed reaching 71 m.p.h.

On Friday Mr. Pixton, accompanied by Mr. Mahl, of the Sopwith Company, took the seventh machine over to Farnborough without incident. On the same day Mr. Gordon Bell, after giving an exhibition of fancy flying at Brooklands, delivered to Farnborough a Short type S 38 biplane (50-h.p. Gnome), which had been at Brooklands over the Christmas holidays, having arrived there in a fog from Eastchurch just before Christmas. This machine is destined for the Central Flying School after passing its tests at Farnborough.

Mr. Gaskell Blackburn is now erecting at Brooklands the Tong May biplane, work on which was started elsewhere. It seems to be the general opinion of those at Brooklands who

M. Farman	50	56	—	37
Hanriot	11	11	—	—
Morane	2	2	16	26
Nieuport	16	21	10	16
Rep	4	11	—	19
Savary	—	1	6	7
Voisin	5	8	13	31
	219	311	238	415*
Other makes	—	9	—	16†
Total	219	320	238	431
*277 delivered.		†9 delivered		

Total in the two years: *Chambre Syndicale*, 457; Chalais-Meudon, 751 ordered, 606 delivered.

From this it will be observed that the Maurice Farman figures (37 machines) were omitted entirely by the Savary report.

These figures should be compared with various totals taken from previous official statements as follows:—

Avions supplied on Budget allowance in 1912 (Declaration of Gen. Hirschauer, October 7, 1912)	300
Avions supplied on Budget allowance in 1913 (Millès-Lacroix report)	336
Avions supplied by National Fund in service in December, 1913	175
Total ...	311

It will be seen that there is a difference of sixty aeroplanes between this statement and the Chalais-Meudon report. This is officially explained by the fact that the aeroplanes purchased by the Government on account of the National Committee, 154 in number (the remaining 21 were supplied direct), each cost £350 out of the Budget money in addition to the sums subscribed, the machines being estimated to cost £600 each, and this additional money in the mass has been counted as actual aeroplanes ordered out of the Budget estimates.

Such is a précis of the report. It will be interesting to hear the reply of the *Chambre Syndicale*. The politics of France are peculiar. No official statement bears the same imprint of truth as that to which we are accustomed in this country on most occasions. It should be remembered that M. Esnault-Pelterie may be mistaken, but he is an honourable man.

are best qualified to judge that, owing to its construction, this machine can scarcely be expected to stand much rough usage.

After forty-one hours' running, during which it has not needed any internal attention, the Isaacson engine in the Flanders biplane came to grief through the shearing of a pin in an experimental valve which Mr. Isaacson has recently been testing. The parts of the valve becoming involved with the internal economy of the engine caused considerable damage, but it is interesting to note that none of the actual wearing parts showed any signs of deterioration, and, of course, the breaking of an experimental part can scarcely be taken as reflecting on the general efficacy of the engine.

On Sunday the weather prevented any prolonged flying at Brooklands, but Mr. Merriam on a Bristol biplane did a very uncomfortable looking circuit, and Mr. Barnwell on the Vickers gun machine did a couple of circuits which caused considerable emotion, on one occasion the machine being practically twisted round by a gust. Earlier in the afternoon Mr. Barnwell took out the Martin Handasyde, and was just turning round to start up, when a gust struck the machine sideways, the rim of one of the landing wheels broke, the wheel collapsed, and the wheel on the opposite side promptly followed suit. However, no damage was done to the machine.

Mr. Alcock has been doing good work with the 100-h.p. Sunbeam on the Maurice Farman, including a trip to Farnborough and back. One gathers that he does not now force the machine at full engine speed, which is wise.

Flying at Hendon.

For the first time on record a new year coming into being saw men in the air, for just before midnight on December 31st, Mr. Richard T. Gates and Mr. Reginald Carr, each on a Grahame-White biplane, went up at Hendon and flew the New Year in. The idea is quite a pleasant one, and one likes to think that in this busy commercial age sufficient sentiment remains to prompt the carrying out of what is really quite a poetic idea. Hitherto the only person popularly believed to frequent the sky in or about the end of the year was one Santa Claus, whose machine, though apparently successful, strikes one as being underpowered, and aerodynamically inefficient. After all, six reindeer-power scarcely compares with a 50 h.p. Gnome, even when missing badly. Anyhow, Messrs. Gates and Carr will go down to history as the first men to fly the New Year in.

Another record to the credit of Hendon on Jan. 1st is that of supplying the first pilot to take his certificate under the new rules. Mr. Lillywhite, one of the G.-W. pupils, went out at 8.30 a.m. and passed his tests on a G.-W. box-kite. It will be remembered that Mr. Lewis Turner, also a G.-W. pupil, was the first to take his certificate when the rules were last altered at the beginning of 1912.

The chief event of Thursday afternoon was the appearance of the "Willows" dirigible, which made several passenger flights—Mr. Willows at the helm—and showed itself very tractable and obedient. At the end of the day Mr. Willows discovered that in letting the engine run free, with the propellers at rest, the pulley had managed to char the slack belt. . . . Another short period of enforced repose while a new section of belt is being procured. Truly Mr. Willows has experienced his full share of life's little worries. That is the trouble of being an originator.

On Friday afternoon Mr. Hamel gave a wonderful flying demonstration, when for the first time in history the loop was looped by a feminine passenger, and the first passenger-loop accomplished in this country.

As a preliminary exercise Mr. Hamel put his Morane to as severe a strain as possible before taking up his passenger, making a number of extraordinary steep banked turns and spiral dives, during which he "looped the loop" seven times, the lowest being at 300 feet.

At 4 p.m. he ascended with Miss Trehawke Davies, and after climbing to just over a thousand feet, he executed a perfect loop, during which he descended about 300 feet. Climbing again to a thousand feet he made a second loop, at the top of which the machine appeared to stop dead, and after hovering upside down commenced to plane down on its back; then with a sharp nose-dive he brought the monoplane to its normal position, making a fine landing opposite the paddock enclosure. It should be noted that the machine is absolutely a standard pattern.

Miss Davies stated that it was the most thrilling experience she has ever had, especially when the earth appeared to be the sky and the sky a vast lake. During the afternoon Miss Gladys Cooper accompanied Mr. Hamel on one of his test flights.

Saturday provided a thin, buff-coloured mist, which forced the aeroplanes to keep fairly low for fear of losing their bearings. In the circumstances one expected to see relatively little; as a matter of fact there were ten pilots in the air, and there would have been an eleventh if Mr. Willows had not charred his driving belt on Thursday.

For some reason or other the sight of six machines, closely grouped, flying low, and looking somewhat ghost-like in this murky atmosphere, produced quite a peculiar sort of thrill.

There was a grand speed handicap which took the place of the cross-country race that was down on the programme. The times were:—

First heat (four laps): 1, Mr. Goodden (Caudron biplane, 45 Anzani), 2 mins. 19 secs. start; 2, M. Noel (M. Farman, 70 Renault), 1 min. 57 sec. start; 3, M. Marty (Morane Saulnier, 50 Le Rhone), scratch; 4, Mr. Carr (G.-W. biplane, 50 Gnome), 2 mins. 59 secs. start. Mr. Goodden made an excellent race of it and deserved his victory.

Second heat (four laps): 1, M. Baumann (Caudron biplane,

60 Anzani), 17 secs. start; 2, M. Verrier (M. Farman, 70 Renault), scratch; 2, Mr. Manton (G.-W. biplane, 50 Gnome), 1 min. 7 sec. start. The Caudrons evidently were inspired by the recent exploits of M. Chanteloup.

Final (six laps): 1, M. Baumann, 20 secs. start, won in 10 mins. 38 secs.; 2, M. Noel, 1 min. 7 secs. start, finished in 10 mins. 43 secs.; 3, M. Verrier, scratch, finished in 10 mins. 56 secs.; 4, Mr. Goodden, 1 min. 1 sec. start, finished in 11 mins. 3 secs.

The final was most interesting. Mr. Goodden did not fly so well as in the first heat, cornering rather widely. M. Baumann, on the other hand, flew magnificently, never wasting a yard of space. His task looked impossible, but he brought it off. Had Mr. Goodden attempted to delay the other Caudron by any back-wash play, as many clever aviators would have done, he could have lost M. Baumann the race; however, for the honour of the "House" he let the faster Caudron by without hauling him.

Mr. Grahame-White was in the air early in the afternoon, Mr. Hall appeared on his new Caudron, and Mr. Crawshaw made a long and spectacular flight in the grey-haired Blériot which he is understood to have purchased. The flight was a fine one, but it would have been more comforting to have seen his tail considerably higher while flying level, and considerably lower while diving. Also he need not have landed low down over the enclosures.

M. Noel ended an interesting afternoon's flying with a grand exhibition. He stopped his engine at a height of three or four hundred feet, and let the machine come to rest. It appeared to be stuck fast in the mist, and since it was obvious that he could not get out and re-start, there was some talk of getting a fire-escape to help him down. However, by blowing backwards with all his might, he managed to get the biplane into motion again, and made a beautiful descent.

On Sunday the weather was very mild but a gusty S.W. wind was blowing. Among the distinguished visitors were Signor Marconi (who went up with Mr. Claude Grahame-White), Lady Rosemary Leveson-Gower, Lord Edward Grosvenor, and Mr. and Mrs. Basil Foster. Excellent flights were given throughout the afternoon by Messrs. Noel, Manton, Marty, and Carr.

The Avro Tests.

In reply to various inquiries, one is able to state on the authority of Mr. A. V. Roe that during the recent tests when Mr. Raynham on an Avro biplane reached a high speed of 83 m.p.h. and a low speed of 30 m.p.h., the machine was carrying besides the pilot an 11-stone passenger and a supply of fuel and oil for three hours' flying, so that there does not appear to be any question of advantage owing to the machine flying light.

A Correction.

Owing to a typographical error, the word "Green" was turned into "Gnome" in the "Review of 1913," in our last issue, in mentioning Mr. Hawker's attempt on the "Seaplane Circuit of Britain." Of course, as it was an all-British competition, Mr. Hawker used a 100-h.p. Green engine. Many thanks to numerous readers for drawing attention to the mistake. It is consoling to find that so many people take so patriotic an interest in the affairs of the aeroplane industry. Would that the authorities had in the past been equally eager to support home industries.

Integral Wins Again.

As usual, the Integral propeller is to the fore when big flights are made. M. Legagneux in his height record, and Messrs. Védrières and Bonnier in their flights from Paris to Cairo, all used Integral propellers.

Mr. Spratt at the R.A.F.

His many friends will be interested to hear that Mr. Norman Spratt, who flew so well all last year at Hendon, on the Deperdussins and afterwards on Bréguets, has recently joined the staff of the Royal Aircraft Factory as a test pilot. One gathers that he already has had one or two little "incidents" in flying the Factory's experimental machines, but happily has emerged without personal injury.

Nieuports in England Again.

One learns with pleasure that the Société des Etablissements Nieuport of Paris have just formed an English branch of their firm, under the title of "The Nieuport (England), Limited." The capital of this company is fully subscribed, and the members of the board are:—Sir Inigo Thomas, G.C.B., formerly Permanent Secretary at the Admiralty. Colonel C. V. Hume, M.V.O., D.S.O., late of the R.F.A., formerly Military Attaché at H.M. Embassy, Tokio, M. Henry Kapferer, C.E., Knight of the Legion of Honour, a famous airship pilot, and Director of the Astra Airship Co., which has recently delivered to England the Astra-Torres, the aircraft holding the world's record for speed, M. Léon Bazaine, Director of the Nieuport works, at Issy-les-Moulineaux, and M. Albert Picard, Knight of the Legion of Honour, who will be Managing Director.

This company proposes to demonstrate their machines before the Admiralty and War Office in England, and it will be remembered that the War Office have already purchased several Nieuport machines. The firm of Nieuport has already sold a great number of their machines to foreign Governments. Nieuport machines have been delivered to Russia, Italy, Spain, Roumania, Bulgaria, Greece, Japan, Siam, Sweden, Argentine, etc., etc. In Russia the Nieuport is particularly successful, and is in higher favour with the military pilots than any other.

Many recent successes stand to the credit of the Nieuport machines, notably the winning of the Michelin Cup by M. Hélén, also the height record beaten a few days ago by M. Legagneux with more than 20,000 feet, and the fine trans-continental flight now being performed by M. Bonnier with his mechanic Barnier as passenger, who have reached Cairo.

It is interesting to hear that speed records will also be attempted very shortly by Dr. Espanet on a 200-h.p. Nieuport constructed specially for the purpose. It is also an established fact that the first "looping the loop" was executed some months ago a Russian, Lieut. Nestorov, on a Nieuport.

With regard to hydro-aeroplanes, these have been brought to a high degree of prominence by the Nieuport firm, and their machines have—independently of success in racing gained by these hydro-aeroplanes—been adopted by the French Admiralty, who recently placed an order for several Nieuports.

The London branch of the Nieuport Company proposes, in order to bring their machines to the notice of the War Office and the Admiralty to make exhibition flights at Southampton and Hendon, where several machines will shortly arrive. Later it is their intention to construct in England, in order to produce machines of all-British make, embodying any improvements desired by the British naval or military authorities.

It is also proposed to bring over here some of the best known of the pilots of the Nieuport Company in France, in order to demonstrate once again the qualities of the machines.

Nieuport (England), Limited will have a stand of considerable importance at the Olympia Show, where machines of much interest will be exhibited. Several entirely new machines are being constructed at the present moment at their factory at Issy-les-Moulineaux and, in this connection, it may be noted that the Nieuport Company have acquired the licence for construction of the Dunne biplane, of which several are being built at the present moment under the supervision of Commandant Félix.

Until Nieuport (England), Limited occupy permanent offices in London, all correspondence should be addressed to M. Albert Picard, Managing Director, The Nieuport (England), Ltd., 28, Milk Street, E.C. Telephone, Bank 8304.

The Wight Seaplane.

The following are the chief characteristics of this machine:—Span, 44 ft.; overall length, 30 ft.; height, 11 ft. 6 inches; motor, 160-h.p. Gnome; weight (empty), 1,700 lbs.; weight (loaded), 2,400 lbs.; floats, J. S. W. and Co.'s patent; aeroplanes, Howard T. Wright's Double Camber Patent.

It has now been thoroughly tested. All trials were made with full load with the following results:—Speed, 63 miles per hour with 1,120 revolutions per minute propeller; ditto, 31 miles per hour with 900 revolutions per minute.

The machine loses elevation very slowly when flying with 7 cylinders cut off, and flies well with 3 cylinders missing.

The machine leaves the water without apparent effort in under 60 yards, i.e., without the "coming unstuck" effect found in so many aeroplanes. She left the water with a 15 to

20 mile "following" wind in about 150 yards, and got up at from 35 to 40 miles per hour.

Alighting is one of the most marked features, as this can be done at 27 miles per hour with no perceptible shock to the pilot. The machine comes to rest in twice the length of the floats.

The climbing rate is, first 500 ft. in 1 min.; 3,000 in 10 mins.

She occupied 1 min. 21 secs. in descending 1,000 ft. at a speed of 46 miles per hour, and gliding angle of about 1 in 5½.

The fore and aft control is ample under all conditions, and the machine can be readily recovered from 35 degrees forward tilt and from an almost vertical dive in a very short space of time. This was tested fully loaded with a second passenger, and light, there being no load on the control lever when flying with the tail up or down. The pilot in all the tests was Mr. Gordon England.

The lateral control is almost automatic. The machine takes its own banking at turns, and remains on the bank and leaves it again on the machine being straightened out without the use of the ailerons. With a very gusty wind of 17 to 20 miles per hour the machine was very easy to control, and put no physical strain on the pilot. With a choppy sea, about 3 ft. high, the floats behaved very well. The floats do not hit the seas hard but pass partially through them.

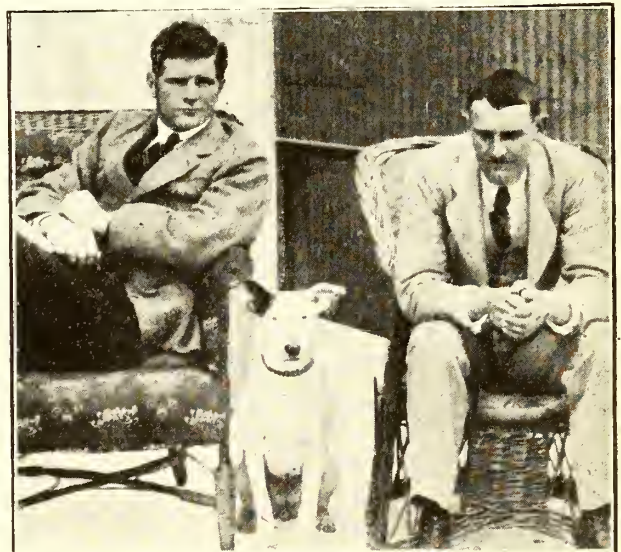
Some Good Bristol Performances.

An excellent performance was accomplished recently on a Bristol tractor biplane (80 h.p. Gnome) belonging to the Naval Flying School at Eastchurch. This machine, flown by Sub-Lieut. Rainey, R.N.R., with a passenger and petrol and oil for 3½ hours' flying, climbed to 12,000 feet in 58 secs. This is almost certainly a record for a machine with a passenger and full load.

Another good performance was that of Lieut. Franklin Sanders, R.N.R., who took his R.Ae.C. certificate at Brooklands last week under the new rules of the Royal Aero Club after only a week's tuition. He particularly wanted to get through as quickly as possible, and that was the reason of his going for his certificate so soon.

On Tuesday last Mr. Sippe, with Mr. Arthur Stone, of the Bristol Company, as passenger, flew from Filton to Salisbury in 35 mins., this showing a speed of about 75 miles an hour, and throughout the journey they maintained an altitude of over 3,000 ft.

On January 5th, Mr. Harry Busteed made a very fine flight on a Bristol tractor (80-h.p. Gnome). Leaving the Bristol works at Filton at 2.50 p.m., he headed for Salisbury at 3,500 ft., arriving at 3.20 p.m., thus covering the distance of 45 miles in 30 minutes, which is at the rate of 90 m.p.h. There was not much wind at the time, and, consequently, the speed of the machine itself must have been close on 70 m.p.h.



Mr. Harry Busteed (the famous Bristol pilot) on left, Sally in centre, and Lieut. Burns of the Australian Army (another Bristol pilot) on right, resting at Lark Hill.

OTHER PEOPLE'S VIEWS.**Electrical Phenomena.**

Sir Hiram Maxim writes:—"I note by your publication of October 30th that you consider it very painful that I should be so extremely ignorant in regard to the character of very high tension electricity. I knew when I wrote the article referred to that a good many Englishmen would not believe what I had said. England of all the countries in the world is the most unsuitable to produce this electrical phenomenon. I was born in the United States and lived there until I was forty years of age. I saw a good deal of electrical phenomena, the most remarkable being at Fitchburg, Mass., one very cold winter. Belts that were not running more than twenty miles an hour would give off flames four inches long if the hand was brought near to them. In many cases the flames seemed to pass from the hand to the belt, and these flames were sufficiently strong to ignite gas. That it had nothing to do with the slipping of belts on the pulleys was witnessed by the fact that the flames were just as intense when no work was being done as when all the machinery was running. There is no reason under the heavens why electrical disturbances should not be created by a large balloon passing rapidly through the air high above the earth in cold dry weather.

"But leaving electricity out of the question altogether, there are many other reasons why the dirigible balloon will never do for military purposes. As I said in my letter to the 'Morning Post,' it is an extremely easy matter to provide projectiles large and small that will give off sparks as they travel through the air. It is only necessary to load the base of the projectile with a fuse mixture of which powdered magnesium forms a part, and as a balloon is an extremely large target, it certainly is a simple matter to hit it, even at long range. Then, again, the flying machine can certainly travel twice as fast as the balloon, and in case of warfare, the flying machine would be able to hover over the top of the balloon and drop explosives which would certainly set it on fire.

"The balloon is very large as compared with the flying machine. One single hit from a small bore rifle is sure to bring down a balloon in one mass of flame, whereas hundreds of similar shots might fail to perceptibly injure a flying machine, which is smaller and much more difficult to hit.

"It is no use to blind ourselves in regard to the capabilities of balloons; there are so many reasons why they cannot succeed, that I feel sure that they will be completely abandoned within one year from the present time.

"A great philosopher has said: 'I know no way to judge the future but by the past.' With balloons we not only have the past for our guidance, but we have our reasoning powers as well. The balloon must go."

[It will strike many readers that Sir Hiram makes a very sweeping statement in his prophecy that dirigibles will be abandoned within a year. The writer is no hard and fast supporter of dirigibles, but the performances of even the comparatively crude airships of to-day have surely proved that they had possibilities for development which warrant any nation in spending a few hundreds of thousands of pounds in experiments. It occurs, for example, that it might be worth while trying to make the whole outer case of a rigid ship of metallic gauze, thus making it a huge Davy lamp. Also, perhaps, someone may discover a non-inflammable gas which is lighter than air and can be produced commercially. As to the electric phenomena, why does not someone in Germany, or in America—where phenomena come from—try towing a small balloon envelope made deliberately to leak, behind a racing car at 70 to 80 miles per hour? Much might thus be proved in this way.—Ed.]

One View of the Question.

Mr. Harry Houdini, well known for his "handcuff" acts on the stage, who was the first man to fly in Australia, and who was one of the earliest aeroplane pilots, writes from Stuttgart:

"I wish to protest against the manner in which you wrote several of your articles in which you seem to hold very low opinions of music-hall performers (vide your issue October 9th, 1913). Whenever you speak of trick flying or Pégoud, you say that they need not degrade themselves to the level of music-hall performers. Twice you have published this, and I think you are either illy-informed about the music-hall performers, or believe that a pilot is a superior person.

"Allow me to inform you that there are as good performers on the music-hall stage as ever will be driving a motor-driven vehicle, and perhaps it will interest you to know that I quit flying not because it had any terrors for me, for I am one of the early fliers; in fact I am numbered amongst the first thirty fliers of the world, having piloted a Voisin biplane in November, 1909, and have won the Aerial League Trophy in March, 1910; in those days there were very few passenger flights, and when you bought a machine you might possibly get 'written directions' of flying same, and your own courage would be the asset. I stopped flying because it became too common, and did not require the ability or courage which I thought it required. If it did there would not be so many aviators.

"I fully appreciate every aviator that ever pulled off the earth; I know what he risks, but I believe that there is just as much danger in fast motoring or motor cycling, and I do not read in the various papers that such and such motorist has lowered himself to the level of a music-hall performer.

"I fail to see why you should make such statements. I do not hold a brief for Pégoud, but you must give that man credit for instilling the truth, in all fliers, that if they are capsized and have enough room below they are as safe as if nothing had occurred. To put courage in the aviators' heart means to make better pilots of them, and by putting courage in a pilot, does not mean that men like Hamel, Hucks, Hawker, etc., lower themselves to the level of the music-hall performer, when they try to duplicate Pégoud's performance. I consider any gentleman music-hall performer the equal of any flier that ever lived or will live, or die, for the cause, and you greatly wrong us music-hall performers when you try and belittle our ranks. Because a man drives a motor-driven vehicle, that does not immediately take him away from other human beings. An inventor of the internal combustion engine, a creator of an original design, a mechanic à la the Wright Brothers, who worked with a knife and odd bits of wood, with the whole world calling them the Flying Liars, Lillenthal, Pilcher, or any of the other delvers, yes! my hat off to them; but when you say a man is superior to a music-hall performer, simply because someone seats him in an already almost perfected powerful motored 'heavier than air' flying machine, be it mono, bi, or triplane, you will allow me to call your attention to the fact you are stretching things a great deal. Trusting that you will grant space for my letter in fairness to us music-hall performers, I beg to remain sincerely yours.

(Signed) "HARRY HOUDINI, Music Hall Artist."

[If all music-hall artists were like Mr. Houdini one would not presume to place the average aviator on a higher level, but, though Mr. Houdini may modestly and loyally disclaim any superiority for himself, the fact remains that it is not fair for him to judge his fellow-artists by his own standard. He is one of the excellent exceptions which prove the rule, for he is a thorough sportsman.—Ed.]

An Air Mechanic Soliloquises.

I've 'eard some music at diff'rent times

As thrilled me to the core,
But the music that beats the organ's peal
Is the engine's hefty roar.

I've smelt the breath o' the countryside
Afar from hustle and toil,
But the smell that's best, and beats all the rest,
Is well burnt castor oil.

I've seen some sights on the African heights
As give me a pain inside,
But it's wuss to see 'Gus on 'is short-winged bus
A doin' 'is Alpine Glide.

I've known the bliss o' a woman's kiss
As could charm yer soul away,
But there's greater bliss i' the whistling hiss
O' the wind round a real taut stay.

Old Death is a friend we must meet in the end,
An' he may come any day.
Well, I'd rather die in a first-chop bust,
Than lie in a dotard's bed and rust
My poor old bones awaw

J. J. J.

The Lay of the R.A.F.

[The Editor disclaims all responsibility for the regrettable sentiments in the following verses. They merely express a correspondent's views.]

Now sings the R.A.F. its lay,
No other feller—may I say?—
Has any right of spouting,
For the R.A.F.'s the cook, I'm told,
That swallowed "the crew and the captain bold,"
And now does all the shouting.

"We build the best of aeroplanes!
"We've got the best of all the brains!
"Our bumps! why just you feel 'em!
"But if we haven't quite the best
"Just set your little mind at rest,
"For, hang it, can't we steal 'em?"

"We never smile, we never laugh,
"We take the needed photograph,
"And study all the details.
"We look at every empenage,
"The medium and the rather large,
"And all the tiny wee tails."

"A little bit of A. V. Roe,
"Another chassis, don't you know,
"That is our way to build 'em.
"The other feller's streamline form—
"What matter if he rave and storm!
"Our consciences? We've killed 'em."

"Our engineers are not quite fools,
"They've gained in polytechnic schools,
"Yes, quite a lot of knowledge.
"No manners and no moral rot;
"A much more useful store they've got
"Than some men get at college."

They've learned the way to pull the strings,
And actuate a many things
Besides an elevator,
For they can turn a "War Lord" on
To advertise them by the ton,
And spout like this; the crater:—

"We've spent a quarter million pounds
"Sending propellers on their rounds,
"And done a lot of flying.
"The cash? It gives us quite five score
"And one effective 'planes or more—
"Who says that I am lying?"
"We fit 'em up with wireless plant
"To send a message to your aunt,
"Or brother at his dinner.
"And come the foemen, late or soon,
"We've guns to blow them to the moon.
"We have, or I'm a sinner!"

With R.A.F. controls thus pulled
The British Parliament is gulled;
They keep their loaves and fishes.
What if the thunderbolt arrive,
And 'tis the fittest that survive?
They will have cleared the dishes.
Let us not think of future woes!
Let's take the best of all that goes,
Eat, drink, and merry be!
The "wild mob's million feet" may kick,
The R.A.F. may exit quick:
We've got to "wait and see"!

MIDSHIPMITE.

For Model Workers and Buyers.

Messrs. T. W. Clarke and Co., who are the pioneers of aeroplane model making, and who still maintain the high reputation the firm earned in its early days, are giving away a steel rule to all customers ordering goods to the value of five shillings or over. One of these rules has kindly been sent us, and it is exactly the kind of thing for anyone concerned with aeroplanes, being divided both into metric measurements and inches.

Messrs. Clarke's list is quite one of the most interesting of its kind and should be in the hands of everybody concerning themselves in any way with models. Incidentally, aeroplane models are an excellent method of keeping youngsters quiet during the holidays, so that parents and uncles, especially uncles who are giving their nerves a rest after a hard season's flying, will find in the list a cheap way to peace and quietness.



Some New Pilots: (1) Capt. H. C. Jennings (Caudron); (2) Capt. C. G. Billing (Caudron); (3) Mr. H. de Havilland (Caudron); (4) Mr. C. Draper (Grahame-White); (5) Mr. Ivor Hart-Davies (Grahame-White); (6) Sergt. Farrer (M. Farman), C.F.S.; (7) Chief Mechanic Grady (M. Farman), C.F.S.; (8) Air Mechanic Copper (M. Farman), C.F.S.; (9) Air Mechanic Hedley Butt (M. Farman), C.F.S.

The Week's Work.

Weather Reports for Week Ending January 4th.

Hendon.—Mon.: Windy, cold. Tues.: Windy, cold. Wed.: Windy. Thurs.: Calm, misty. Fri.: Slight wind. Sat.: Slight wind. Sun.: Very strong wind.

Windermere.—Mon.: Ice. Tues.: Fresh breeze. Wed.: Fair. Thurs.: Fair. Fri.: Squalls and showers. Sat.: Rain.

Montrose.—Mon.: Frost and wind. Tues.: Frost and wind. Wed.: Frost and wind. Thurs.: Dull. Fri.: Dull. Sat.: Dull.

Eastchurch.—Mon.: High wind, snow. Tues.: High wind, snow. Wed.: High wind, fine. Thurs.: High wind, dry. Fri.: Wind, fog. Sat.: Slight wind, fog. Sun.: High wind.

Brooklands.—Mon.: Bad. Tues.: Bad. Wed.: Good. Thurs.: Very good. Fri.: Windy. Sat.: Good. Sun.: Windy.

Salisbury Plain.—Mon.: High wind, snow. Tues.: Windy. Wed.: Windy. Thurs.: Fair. Fri.: Good. Sat.: Good. Sun.: Good.

Shoreham.—Mon.: Strong winds. Tues.: Strong winds. Wed.: Gusty winds. Thurs.: Fair. Fri.: Fair. Sat.: Calm. Sun.: Strong winds.

School Reports.

Hendon.—At GRAHAME-WHITE SCHOOL.—Instructor during week: Mr. Manton. Pupils, with instructor on machine: Messrs. Piercy, Moore, Cowley, and E. Parker. Straights alone: Messrs. Cripps and Bjorkland. 8's or circs. alone. Messrs. Webb, Lillywhite, Cripps, Norris, Bjorkland. Certificates taken by Messrs. Lillywhite and Webb. Machines in use: Grahame-White biplanes and Blériot mono.

At HALL SCHOOL.—On Thursday Mr. J. L. Hall on No. 1 Caudron for 45 mins. On Friday at 1,000 ft. on No. 1 Caudron, spiral descent with propeller stopped. On Saturday exhibitions. Machines in use: Tractor biplanes, Caudron and Avro; monoplane, Anzani (Blériot). School closed for Christmas holidays. Re-opening January 5th.

At EWEN SCHOOL.—Instructors during week: Messrs. Baumann, Goodden and Zubiaga. Pupils doing straights or rolling alone: Lt Kinnear, Messrs. Banks-Price, Busk and Freshney. 8's or circs. alone: Messrs. Cooper, McGregor and Murray. Machines in use: 2 Caudron biplanes (35 Anzani) and one 60 h.p. Mr. F. W. Goodden put up an excellent cross-country flight with a passenger, to Tonbridge, where he did some excellent exhibitions. M. Baumann carried many passengers.

Brooklands.—At VICKERS SCHOOL.—Instructors during week: Messrs. Barnwell, Knight and Elsdon. Pupils, with instructor on machine: Messrs. Martindale (6), Fulton (8), Creagh (14), Dawson (2) (biplane). Straights or rolling alone: Messrs. Fulton (1), Martindale (1), Dawson (1), (biplane). 8's or circs. alone: Messrs. Martindale (9), Dawson (3), Fulton (17) (biplane), Webb (1) (monoplane). Certificates taken by Messrs. Martindale and Fulton. Machines in use: Propeller biplanes Nos. 20 and 21, monoplane No. 5. Mr. Barnwell made many tests on Blériot mono. and gun-carrying biplane.

At BRISTOL SCHOOL: Instructors during week: Messrs. Merriam and Halford. Pupils with instructor on machine: Lt Piggott (new pupil) (17 flights) 2½ hrs. Lt Cull (new pupil) (15) 2 hrs 20 mins. Lt Watkins (15) 2 hrs 25 mins. Lt Sanders (5) 1 hr. Straights: Lt Sanders (1) 20 mins. 8's or circs alone: Lt Sanders (2) ½ hr. Certificates taken (1st Jan.): Lt Sanders, landing in glide from 500 feet, this being the first Brooklands certificate under new rules. Three biplanes in use.

Mr. Jack Alcock, on the Maurice Farman (100 Sunbeam), was flying with and without passengers on Monday, Wednesday and Thursday. On Friday he flew with a passenger to Farnborough at 3,000 ft. to deliver some engine spares.

Shoreham Flying School.—Instructor during week: Mr. W. Elliott. Pupils on straights or rolling alone: Lt Clemson, Messrs. Purnell and Hayland-Wilson. 8's or circs alone: Mr. R. P. Cannon. Machine in use: Avro (45 Green).

Salisbury Plain.—At BRISTOL SCHOOL: Instructors during week: Messrs. Busted, Voigt, and Sippe. Pupils, with instructor on machine: Mr. Stutt (Australian) (14 flights), 2 hrs 40 mins; Mr. Gilligan (6), 1 hr; A.M. Locker (2), ½ hr. Straights or rolling alone: Mr. Gilligan (6), 1 hr 10 mins;

A.M. Locker (1), 25 mins. 8's or circs. alone: Mr. Garnett (6), 1 hr; A.M. Locker (1), 15 mins; Mr. Gilligan (2), 25 mins. Machines in use: 3 Bristol standard school propeller biplanes, 2 Bristol 80-h.p. tractor biplanes, 1 Bristol side-by-side school mono. On Tuesday, Mr. Sippe, with Mr. A. E. Stone, on 80-h.p. tractor, arrived from Filton, landing in four spirals from 6,000 feet, and then gliding with engine cut out from 4,000 feet, to hangars. Strong wind throughout the flight. On Thursday Messrs. Busted and Sippe on 80-h.p. tractor biplane to Netheravon for demonstration.

Eastchurch.—On Monday 29th Professor Huntingdon was out. At first only testing landing chassis, but later very steady in high wind. The machine is a very early type Dunne and now fitted with 70-h.p. Gnome.

Eastbourne.—Mr. J. E. B. Thornely, was doing a spiral dive from over 2,000 ft when his engine stopped. It failed to pick up when he flattened out and the machine alighted in a dyke. The machine was smashed, but the pilot unhurt.

Windermere.—On Wednesday, Thursday and Saturday, Mr. Stanley Adams flew the "Water Hen," both with and without passengers. Mr. Lancaster (pupil) also flew the machine.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Invention. Particulars, with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120.

W. H. EWEN SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD., London Aerodrome, Hendon.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work, £50. Passenger flights from £2 2s.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION CO., London Aerodrome, N.W.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

TUITION FOR THE AIRSHIP PILOT'S CERTIFICATE. Inclusive fee £100. Special terms to Naval and Military Officers. New regulations requiring twenty ascents come into force January 1st, making course more difficult and expensive, so take the opportunity of qualifying now under present conditions.—THE WILLOWS AIRCRAFT COMPANY, LTD., The London Aerodrome, Hendon.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—THE BLACKBURN AEROPLANE COMPANY, Leeds.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.

ENGINES FOR SALE.

WANTED, 50-h.p. Gnome in first-class condition.—Send full particulars and price to THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.

EMPLOYMENT.

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—WULFFING, Aeronautical Engineer, 2, Barclay Road, Walham Green Station.

YOUTH of 17 requires Situation as apprentice to aeroplane mechanic.—Apply, L. SAWBRIDGE, Cockshutt, Ellesmere, Salop.

YOUTH, 18 years, wishes Situation in mechanical aeroplane construction, to learn; well connected; references.—BARNES, 12, Ferris Road, East Dulwich, S.E.

TINSMITH and Sheet Metal Worker, 28 years' experience, "expert," competent organiser, qualified to control men, systematic, and disciplinarian, seeks Responsible Position with a firm who would appreciate ability; highest credentials.—Box 527, THE AEROPLANE, 166, Piccadilly, London, W.

WELDER and metal-clip worker wanted.—Apply Box No. 528, c/o THE AEROPLANE, 166, Piccadilly, W.

WANTED, excellent all-round aeroplane mechanic, used to wood and metal work, wiring and splicing. Experience with stationary engines preferred.—Apply Box 526, c/o THE AEROPLANE, 166, Piccadilly, W.

WANTED.—Expert Oxy-Acetylene Welder for aeroplane work.—Reply, stating experience and salary required, to G. H., c/o THE AEROPLANE, 166, Piccadilly, W.

UPSIDE-DOWN FLYING.

GEORGE LEE TEMPLE is open to give exhibitions of upside-down flying at home or abroad.—TEMPLE, Hendon Aerodrome.

MISCELLANEOUS.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—WM. MALLINSON AND SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.

MODELS.

DING QUALITY MONOPLANES are stocked in London by Gamages, Holborn; Hamleys, Regent Street; Selfridges, Oxford Street. They are well worth inspection.—THE W. R. DING COMPANY, 24, Villa Road, Handsworth, Birmingham.

M.S.C. DURATION MODEL, size 31 in. by 24 in., 5s. Lots of finished parts, with drawings for constructing the above model, 2s. 6d. We stock everything for models.—MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.

T. W. CLARKE AND CO.,
HAMPTON WICK, MIDDLESEX.

'Phone—Kingston 869. Est. 1906.

THE Pioneer Aeroplane Accessory Manufacturers wish you the Compliments of the Season, and offer to you an accurately marked steel rule, gratis, with every order to the value of 5s. Send along your orders, and you will be delighted. Send stamp for lists. Be in time!

S. J. KEMP & Co.,
CROWN WORKS, Kingston-on-Thames.
(Many Years' Head Model-maker to Messrs. T. W. K. Clarke & Co.)
Every Requisite for Model Aeroplanes. Send 1d. for List.
Models of Every Description built promptly.
Phone 321 Kingston. Telegrams "Garage, Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH "GLUE"

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

RECORDS

DAILY TELEGRAPH—17th Nov., 1913.

"The spectators at Hendon were given a remarkable demonstration of the wonderful qualities of this fine 'Avro' Biplane, whose splendid performance stamped it as one of the finest Aeroplanes ever designed, if not, indeed, the finest of all. One heard with great satisfaction that Raynham had set up two new records for the Aerodrome, having covered his fastest lap in 1 min. 11 secs. and completed six laps in 7 mins. 27 secs. . . . and this though the 'Avro' Biplane is a standard machine designed for purposes of general utility and not primarily for speed."

ON THE AVRO

ARMY AND NAVY GAZETTE—15th Nov., 1913.

"Not only is the 'Avro' very fast—its speed cannot be much below 80 miles an hour—but its speed variation is enormous, as Raynham strikingly showed last Sunday, when switching off and on, but remaining in level flight the while, he covered the Aerodrome course at something like 30 miles an hour."

NOTHING BETTER.

A. V. ROE & CO., LTD.,

Contractors to the Admiralty, War Office, and Foreign Governments.

Clifton Street, Miles Platting, MANCHESTER.

Telegrams: "TRIPLANE."

Telephone: FAILSWORTH 337

FLYING AT HENDON

SATURDAY NEXT, January 10th, 1914, JANUARY MEETING

16 MILE CROSS COUNTRY HANDICAP

COMING EVENTS.

Sat. Jan. 17th. SECOND WINTER MEETING. (Speed Contest.)
Sat. Jan. 24th. THIRD WINTER MEETING.
Sat. Jan. 31st. SECOND METROPOLITAN MEETING.

A SUGGESTION

The Directors of the Aerodrome would be glad if visitors who are interested in aviation could arrange to display small notices in their offices and business premises, giving particulars of Flying Races and Exhibitions at the London Aerodrome, Hendon. The Directors would much appreciate their co-operation, and would be glad to send Fixture Notices, on receipt of a note to the London Office, 166, Piccadilly, W.

AVIATION LECTURES

The Grahame-White Aviation Co. have prepared a number of slides of aeroplane subjects, and will be pleased to loan these free of charge for the purpose of illustrating lectures on Aviation during the Winter months. Applications should be addressed to "Lecture," London Aerodrome Offices, 166, Piccadilly, W.

WINTER SEASON — RACES EVERY SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Friday afternoon, from 2.30 p.m. till dusk (weather permitting).

Admission, 6d., 1s., 2s. (Children Half-price).

Motors (including chauffeur), 2s. 6d.

THE LONDON AERODROME, HENDON, N.W.

Proprietors: The Grahame-White Aviation Co., Ltd.

HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."

LONDON: 166, Piccadilly, W. Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."

"THE AEROPLANE," JANUARY 15, 1914.

THE AEROPLANE

Edited by CHAS. G. GREY. ("Aero-Amateur")

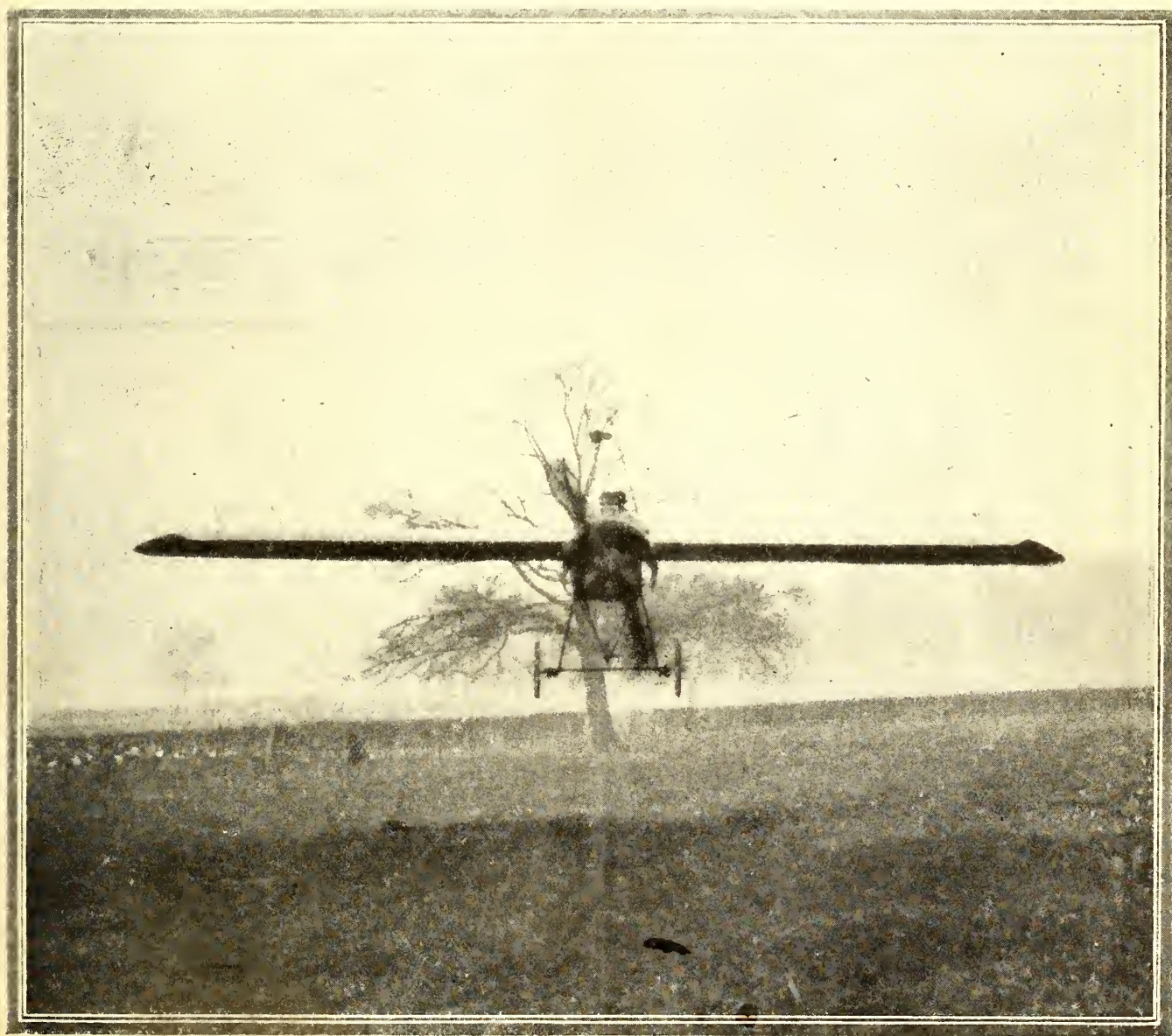
12
WEEKLY

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, JANUARY 15, 1914.

No. 3

'FORE!



Photograph by courtesy of the "Daily Mirror."

A study of Mr. Hamel starting at Comhermere Abbey on his Morane-Saulnier monoplane, 80-h.p. Gnome, on which he loops the loop. One admires greatly the pluck, or lack of imagination, of the photographer who stood in the direct path of the machine.

The special design of the
Handley Page Planes

gives to the aeroplane that inherent
 stability which makes this machine so
 easy to learn upon, so simple to fly.

• • • • •
Flying School - - Hendon
 • • • • •

TELEPHONE
 2574 VICTORIA.

TELEGRAMS
 HYDROPHID,
 SOWEST
 LONDON.

HANDLEY PAGE, Ltd.,

72, Victoria Street, S.W.,

CONTRACTORS TO H.M. WAR OFFICE.

WORKS:
 CRICKLEWOOD,
 LONDON, N.W.



The "Bristol" *Flying Schools*

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types, of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " " "	3	3	6 " " " "	5	6
12 " " " "	6	6	12 " " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

Meteorology and Aeronautics.

The suggestion made by Major W. S. Brancker, R.A., of the Department of Military Aeronautics, at the Aeronautical Society's meeting last Wednesday, that a definite effort should be made to correlate and co-ordinate the observations of aviators and of meteorologists, is one of the most useful ideas propounded to assist the progress of aviation for quite a while. One only hopes that the Royal Meteorological Society and the Aeronautical Society will get together as soon as possible and formulate some scheme by which results will be forthcoming without the delay attending the publication of, say, such things as the Monoplane Committee's Report, or the science-shaking pronouncements of the National Physical Laboratory at Teddington, that strange establishment which announces at intervals, in a volume which combines cleverly the boredom of "Pilgrim's Progress" with the air of a self-surprised Christopher Columbus, discoveries made, at great expense, which were known to practical aviators and constructors at least a year before. On the part of this paper, at any rate, I can promise that space will always be found for any announcements of practical value that those in charge of the joint deliberations care to make.

The whole subject of the investigation of aerial disturbances, the cause and construction of gusts, and the behaviour of wind-currents is one of intense interest and should be taken up in a most serious spirit, though, as Doctor Shaw showed us the other evening, a serious spirit of research may combine instruction with a considerable amount of wit and amusement. Presumably, the first thing to be done is to come to an arrangement between the committees of the two Societies, that joint meetings shall take place, at which a regular plan of campaign may be organised. Thus far it is sufficiently plain sailing. The real difficulty comes in when the task of extracting information from the shy and elusive aviator is tackled.

The Need for Combination.

The practical utility of combining the investigations of the two Societies is fairly obvious. So far, the practical aviator and the scientific meteorologist have been in the positions which practical men and theoreticians have occupied from time immemorial, the one lot working and the other lot thinking, and each of them often holding the key to the problems which puzzle the other without being able to hand it over. If the go-betweens of the Aeronautical Society, who are on friendly terms with both parties, can pool their combined knowledge and publish it, not only will aerial navigation be simplified, but many serious accidents may be avoided.

The latter is, I take it, the chief purpose of meteorological study, so far as we, who depend on flying, are concerned. Study for study's sake does not interest us over-much, so if aviators are to be interested in the investigations, the published results of experiments should always be accompanied by a kind of moral to

the story, pointing out how it particularly helps the flier—and I take it that it is important to interest aviators. The imparting of anything that looks like "book-learning" to the practical man is always a tedious and generally a thankless job. Fortunately, anything of real value which is evolved can be taught to the pilots of both Services without much trouble, thanks to the bonds of discipline; but inducing the uncontrolled civilian aviator to learn, though just as necessary, will be more difficult. He certainly takes a certain mild interest in anemometers, not with any idea of studying the internal work of the wind, but more in the spirit in which a motorist regards a speedometer. The aviator likes to talk about the speed of the wind in which he has been flying, much as a motorist likes to talk of the speed at which he has been driving.

Anemometers in General.

Also, the standard type of anemometer, though doubtless mathematically accurate, so far as the wind that really hits it fair and square is concerned, never gives an absolute measure of the wind, because none of those used at aerodromes are high enough to reach the level at which the flying is done; and all I have ever seen are so placed that, in one direction or another, trees or buildings or irregularities of the ground prevent the wind from reaching them direct. Consequently, the readings on the charts are hopelessly inaccurate, and can only be taken as giving one a general idea of what the wind is doing at any given time. Hence the nickname of "Ananiameter," bestowed on them by the irreverent.

Apart even from interference, the ordinary weather-cock anemometer is unreliable, because every change in the direction of a gust makes a difference in the reading, and the wind, as Doctor Shaw showed us, changes its direction very considerably even in a second or two, reminding one of the black rabbit in the little girl's statement that she had six rabbits "and blackie, but he won't stand still to be counted." When someone invents an anemometer which works on a universal joint, and is actuated by wind-vanes so far away from it that it faces round and up or down so as to meet every fresh gust direct with the full bore of the tube, we may find out some quite fresh information about the changes in speed and direction of gusts.

Practical Observers.

In the course of the discussion following Doctor Shaw's paper it became evident that the really observant aviator already knows rather more in some ways than does the average, or possibly even the distinguished, meteorologist, for when Major Brooke-Popham, O.C. No. 3 Squadron, R.F.C., mentioned the familiar experience of finding a stratum of bumpy air between two well-defined levels, above and below which the wind was blowing steadily in different directions, it seemed to strike Doctor Shaw as rather a new idea, though he had previously shown four excellent pictures of a "line squall" caused by descending and

ascending currents of different temperatures, which is a somewhat analogous cause of disturbance, but more localised, and therefore perhaps more intense.

It would be interesting if an anemometer chart, and any meteorological observations from the district, could be obtained for the period of the squall at Montrose recently, when Captain Longcroft, No. 2 Squadron, R.F.C., gave his brief but exciting exhibition of landing in a 75-mile-an-hour wind. The symptoms, so far as one can gather, were those of a "line squall," and doubtless Doctor Shaw would be able to discover something educative from the conditions immediately preceding and following the squall.

The knowledge that an aeroplane could live at all in such a wind is in itself highly educative, but we want to know more about these things, and herein it is to be hoped that the Department of Military Aeronautics will assist. Also, it is to be hoped that it will be a trifle more generous in the information which is allowed into the hands of mere civilians than it is in its communications on the doings of the Royal Flying Corps in other matters.

The Lack of Present Knowledge.

There is an enormous amount still to be learned, even in the simplest things. For example, take the case of the wind striking an obstruction, such as the face of a wall, or a house, or a grove of trees, and squirting upwards. Can anyone tell me whether, if the wind increases suddenly in strength, the upward current goes higher vertically, or whether the increased power of the wind cuts the up-current short off above the obstruction and beats it down, or whether the highest point of the disturbance caused by the up-current does go higher but is forced back behind the face of the obstruction, and so makes a longer distance behind the obstruction in which there is a downward current? I attempted to argue the point once with one of our leading naval aviators, but the discussion drifted into the classic form of the gun-room argument, with its three definite stages—unsupported assertion, flat contradiction, and personal abuse. The sailor was quite certain that the stronger the wind the less the height the disturbance reached. I raised the same question with Doctor Shaw after Wednesday's discussion was over, and he told me that experiments on the Rock of Gibraltar showed that the stronger the wind the greater the height of the disturbance, but he admitted that the height of the obstacle itself might make all the difference. Also, I take it that the height of the disturbance would vary very much according to whether it was caused by a steady increase in the speed of the whole wind, or by a sudden gust. It will be readily perceived that knowledge on such a point as this is valuable to aviators, as it should help them in landing over such obstructions, or when approaching landing-places surrounded by trees or buildings. Such knowledge, and thoughtfulness in using it, which is still more difficult to ensure, might have prevented the deaths of Lieut. Parke, R.N., and Mr. Hardwick, and the accident to Mr. Hawker at Brooklands, in coming down wind over trees, or the converse accident to Mr. Hamel at Bognor, when he flew head to wind into a down-current over trees, so that his machine refused to lift over them, and was fortunately planted flat on the ground just before he ran into the trees themselves. He did precisely the same thing with Miss Trehawke-Davies on her Blériot at Hendon, by flying into the down-drop over the sheds, but, happily, he was just high enough to scrape over the top and land in the field alongside Colindale Avenue. It seems that much the same cause wrecked the Grahame-White five-seater at Folkestone recently, as Mr. Grahame-White tried to get out of a field up-hill facing the wind over a hedge.

As I have said, the difficulty is to induce civilian

aviators to learn to use their heads as well as their hands. Personally, I would rather trust myself to the naval aviator who always flies with his little indicator string and a laboratory of instruments in front of him, than with any of the natural-born instinctive fliers. The safe flier is made, not born, and the best is both.

Methods of Investigation.

One gathers that much investigation is done by meteorologists by means of small balloons and air-balls. Now these are all very well in their way, but I venture to suggest, in all humility on account of my ignorance, that they may give results which are misleading when applied to full-sized aeroplanes. For instance, a cork float on the sea might indicate conditions of roughness and of subsidiary currents which would be negligible when one was concerned with boats between 30 feet and 80 feet in length. Similarly, I take it that gusts which look terrible when judged by the evolutions of a toy balloon would be nothing when a 70-mile-an-hour aeroplane was ploughing through them, and, presumably, the bigger and more powerful the aeroplane the less the gusts matter.

We know this to be true, because a couple of years ago, when aeroplanes were smaller and slower and less efficient, everyone who ever flew between Brooklands and Hendon always complained of having an awful time over Hounslow, till the "Hounslow Bump" became a natural phenomenon as clearly recognised as the tidal wave of Fudy Bay. One may perhaps surmise that it is a disturbance caused under most prevailing conditions by the unequal temperatures arising from the alluvial gravel of the Thames Valley and from the London clay in the Harrow direction, Hounslow being somewhere about the junction. Anyhow, there the lumpy air was on most occasions, but to-day one never hears anything about it, either because machines are better and do not feel it, or because pilots are so used to being bumped about that they take no notice of it. I take it that it is phenomena similar to this that the Meteorological Society would like to study, with the help of the aviators themselves. The job is to extract the information from the pilots.

A Supposititious Case.

One may imagine what might happen if the matter were not skilfully handled. One who had not met the Royal Meteorological Society in person and seen how charming its members are might picture a court of grave and reverend signors—naturally, a Society with the prefix "Royal" and a title ending in "ological" must consist of such. Enter to them a pilot-aviator whose strange experience in a gust has been brought to their notice by an earnest investigator—like myself. The chairman of the meeting, in portentous tones, says: "Mr. Breakwood. Our friend here informs us that you have recently experienced a somewhat unusual manifestation of the turbulent behaviour of air under some apparently inexplicable extraneous impulse. Would you oblige my colleagues and myself by describing as precisely as possible the particular concatenation of circumstances which your personal observations would suggest as producing the accident from which we all so much regret to see that you still preserve the superficial evidence, as shown by obvious abrasions of the cuticle?" Whereupon the practically monosyllabic pilot—whose vocabulary ordinarily consists of Mr. Kipling's classic four hundred words and the adjective—would promptly lose his head and reply in the vernacular, "Well, you see, it was like this: I'd had rather a thick night the night before, so I thought a bit of a blow'd do my head good. So, instead of doing stunts with the pups round the ground, I thought I'd take a bit of a joy-ride. So I got out the old 'bus and started off all merry and bright. Engine goin' a bit dnd, p'raps, but I guessed she'd pick up when she warmed up a bit. She puffed along quite O.K. till we got about the bona-fide

LEARN TO FLY

at the
VICKERS FLYING SCHOOL
BROOKLANDS.



From Slow Biplane to Fast Monoplane:



The VICKERS Flying School gives a thoroughly graded course of tuition by capable and experienced instructors upon machines of sound construction and of up-to-date design.



VICKERS, Limited,

AVIATION DEPARTMENT,

VICKERS HOUSE, BROADWAY,

LONDON, S.W.

traveller's limit from the ground, and then I got the deuce and all of a dunt under the right wing. Felt like a bolster hitting the bally plane. Then she went over on the left, and tried to do a tango dip on her own. I shoved the stick as far forward as it'd go, and tried to get her nose down, but she wasn't having any. Hadn't got any side control at all. Waggled the flappers like anything, but nothing doing. Then I lost my prop, and I thought I was for it right enough. Then quite off her own bat, she came under control again, and I got a proper dive on her, and straightened out my feet; but it was too late to pick a field, and I had to go for what looked like someone's tennis-court. Large dog saw me comin' and charged at the machine, like dogs do at cars. Chassis hit the ground and the dog about the same time, and I've never made up my mind whether it was one of the tyres or the dog that went off with such a pop. Next thing I remember was taking a toss through the emergency exit into a big fat bush, and there I stopped till the old sport that owned the place hauled me out. And he wasn't half sick about his dog. And I think that's all I have to say."

Now, you perceive that there is not much basis for discussion between the two parties concerned, and that there is a need for circumspect go-betweens to select the victims who are to be interrogated and possibly to act as interpreters. Also, you perceive the high value, ridiculed, I regret to say, by certain young officers, of the little lectures which are delivered at the beginning of each term to the "new draft" at the Central Flying School, warning them against the evil habit of using slang in their aeronautical conversation, and particularly deprecating such abbreviations as "bus," "stunt," "dunt," "prop," "joy-ride," and

other expressions unworthy of an officer and gentleman.

Unworked Mines.

However, there are really vast mines of information stored among aviators, and they can be properly developed. I am sure that if anyone took my young friend, Mr. Hamel, gently aside and asked him what happens under certain circumstances, he could, "an he would," relate enough to fill a book—I gather that he and Mr. C. C. Turner have already done so, though perhaps not entirely on meteorology, and very interesting it will be. He is one of the keenest observers I have ever met, though he does not seem to bother about causes. He seems to think that it is—

"His not to reason why,
His but to loop or die,"

or words to that effect. But he can tell you whether the air is likely to be really bumpy or merely bubbly under a certain cloud, simply by looking at it, and whether it will be best to pass it on the sunny side against the wind, or on the shady side with the wind, or *vice versa*. Mr. Hucks, also, if questioned, could doubtless describe many strange phenomena, without bothering to explain them. Mr. Dyott is another pilot of many experiences here and in America, and being, like the baby elephant, "full of 'satiabile curiosity,'" he has devised pretty instruments of his own to investigate and explain them. Mr. Barnwell, the Vickers pilot, is another keen observer who uses his goodly gift of brains. These and many other constant fliers should provide both Societies with material for months to come, even apart from properly organised information from both Services. I wish success to their investigations, and only trust that whatever is to be done will be done quickly.—C. G. G.

The Royal Aero Club.

At the committee meeting on January 6th, the chairman, on behalf of the committee, congratulated Major J. D. B. Fulton on the honour, Companion of the Most Honourable Order of the Bath, conferred upon him by His Majesty the King.

The following aviators' certificates were granted:—706, William Henry Elliott (Avro biplane, Shoreham Flying School, Shoreham), Nov. 22nd, 1913; 707, Sergt. John Roland Gardiner (Short biplane, Central Flying School, Upavon), Dec. 11th, 1913; 708, Ian Cameron Macdonell (Bristol biplane, Bristol School, Brooklands), Dec. 17th, 1913; 709, Robin George Duff (Vickers biplane, Vickers School, Brooklands), Dec. 18th, 1913; 710, James Leonard Finney (Bristol biplane, Bristol School, Brooklands), Dec. 19th, 1913; 711, Capt. Hugh Caswall Tremenhare Dowding, R.A. (Vickers biplane, Vickers School, Brooklands), Dec. 20th, 1913; 712, Sergt. Frederick George Bateman (Maurice Farman biplane, Royal Flying Corps, Netheravon), Dec. 20th, 1913; 713, Lieut. Charles Edward Ridgway Bridson (3rd Battalion King's Own Regiment) (Bristol biplane, Bristol School, Brooklands), Dec. 20th, 1913; 714, Sub-Lieut. Geoffrey Rhodes Bromet, R.N. (Bristol biplane, Bristol School, Brooklands), Dec. 22nd, 1913; 715, Lieut. Rowland Edward Brian Hunt (E.A.C. biplane, Eastbourne Aviation School, Eastbourne), Dec. 22nd, 1913; 716, Lieut. Edmund Digby Maxwell Robertson, R.N. (Bristol biplane, Bristol School, Brooklands), Dec. 22nd, 1913; 717, Andrew Delfosse Badgery (Caudron biplane, Ewen School, Hendon), Dec. 22nd, 1913; 718, Lieut. Robert Crosby Halahan, R.N. (Bristol biplane, Bristol School, Salisbury Plain), Dec. 24th, 1913; 719, Cecil Francis Webb (Grahame-White biplane, Grahame-White School, Hendon), Dec. 31st, 1913.

Under New Regulations.—720, Robert John Lillywhite (Grahame-White biplane, Grahame-White School, Hendon), Jan. 1st, 1914; 721, Sub-Lieut. Franklin Geoffrey Saunders, R.N.V.R. (Bristol biplane, Bristol School, Brooklands), Jan. 1st, 1914; 722, Hugh Barnes Martindale (Vickers biplane, Vickers School, Brooklands), Jan. 3rd, 1914.

Flying to the Danger of the Public.—At the invitation of the

committee, Major F. Lindsay Lloyd, the manager of Brooklands, attended the meeting and gave his views on this subject. Mr. R. T. Gates, the general manager of the London Aerodrome, Hendon, was at the last moment prevented from attending the meeting, but promised to be present at the next meeting, when the matter will be further considered.

The Edinburgh Aeronautical Society.

W. H. Ewen, Esq. will give two cinematograph lectures on "Learning to Fly," in the Princes Cinema at 3 p.m. and 8 p.m. on Tuesday, January 20th. Members, on showing their membership cards, will be admitted free.

The Airship Pilots' Certificate.

Under the New Regulations, which are now in force, a candidate for the Airship Pilot's Certificate already having an Aeronaut's Certificate must make 20 ascents in an airship. In the case where the candidate does not hold an Aeronaut's Certificate, 25 ascents in an airship must be made. These ascents must be made on different dates. Candidates are also required to pass a technical examination, the main feature of which is taking the sole control of the airship in a satisfactory manner in three of the above mentioned ascents, from the time of leaving the ground to the time of landing. These three ascents must be of a duration of not less than 15 minutes each. Candidates must be not less than 21 years of age.

Corroborative Evidence.

A well-known constructor of British aeroplanes who has recently made a trip on the Continent, writes: "I agree with you that the Paris Show was not interesting. I saw, however, in different works very interesting variable speed machines. But one of the most sensational features in Continental aeronautics is the progress of German aviation. I myself am convinced that Germany is well ahead in military aviation. The organisation is splendid, and the German engines run really well. The German War Office pays for every machine fulfilling their demands 35,000 marks (£1,750), disregarding power or size, and in this wise does not kill private manufacturers."



Hélén, Winner of the Michelin Cup. Mileage 11,000. November 29th, 1913

**CONTRACTORS TO
H. M. GOVERNMENT**

ALSO THE

**FRENCH ,,
RUSSIAN ,,
SPANISH ,,
ITALIAN ,,
JAPANESE ,,
GRECIAN ,,
ROUMANIAN ,,
BULGARIAN ,,
ARGENTINE ,,
Etc., Etc.**



Legagneux, World's Height Record, 20,400 ft. St. Raphael, December 27th, 1913

THE NIEUPORT (ENGLAND) LTD.

A direct branch of La Sté. des Etablissements Nieuport.

**PARIS—ISSY-LES-MOULINEAUX—VILLACOUBLAY
—MOURMELON—ST. RAPHAEL.**

Managing Director: ALBERT PICARD.

**Temporary Address: 28, MILK STREET, LONDON, E.C.
'Phone: Bank 8304.**

Flying Grounds at Hendon and Southampton.



Bonnier and his Passenger. Paris to Cairo, 2,750 Miles. Cairo to ?

LATEST SUCCESSES IN 1913.

The Michelin Cup. 29 days' continuous flying by **Helen.**

The longest flight in hydro aeroplane with passenger: Levasseur. Paris—London—Amsterdam—Hambourg—Emden and back to Paris.

Longest Cross Country with passenger: Bonnier. Paris to Cairo—flew over the Carpathian mountains and the Taurus (10,000 feet).

World's Height Record: Legagneux.

First Looping the Loop by Captain Nesterow of the Russian Army (9th Sept. 1913)



Major Félix, the famous Aviator who flew on 18 different types of machines, now Pilot of the Nieuport Dunne.

The "Times" Newspaper and the Aeroplane Trade.

BY W. E. de B. WHITTAKER.

Some time ago the Aeronautical Correspondent of the "Times" published in that paper a series of articles entitled "Aeronautics and the Powers," which were in essence a well-written summary of the views and knowledge of one or two of the leading aeronautical writers in this country. The aerial fleets of France, Germany, Italy, and Great Britain were described briefly and vaguely, but in a manner free from apparent bias. In the article dealing with Great Britain an attempt was made to defend Colonel Seely with the clear intention of helping an institution much favoured by that politician. The Royal Aircraft Factory was felt to need some gallant knight of the pen to uphold its banner before a storm of opposition.

Those few articles no doubt served their purpose at the time, but the very width of the subject treated prevented any very real sympathy attaching to our English "Chalais-Meudon" in the public mind. The great public is not very interested in matters which have no direct appeal to it. Lest perchance the opposition—that is to say, the "aeronautical trade"—should gain the public ear, an almost inconceivable state of affairs in this country, the "Times" "expert" has published a further series of articles in that paper purporting to deal with "Aeronautics and the Services," but which are, in fact, a vigorous and not too exact a defence of the policy adopted in the past by the War Office on advice from its civilian employees. A leader was also devoted to the subject on January 8th. I propose to deal briefly with the various points made by the "Times" correspondent.

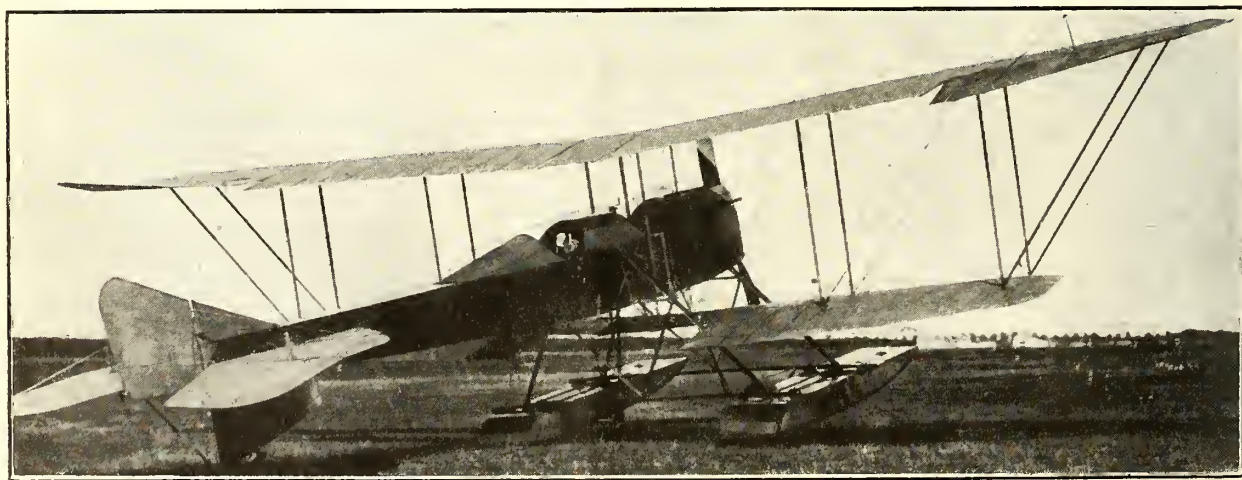
It should not be forgotten that articles by an unknown writer whose knowledge of his subject may or may not be extensive in a technical or historic sense, but, published in the "Times," newspaper, are of far greater importance than would be a series dealing with the same subject, and written by the highest authority in the land, if published in any other paper. The "Daily Mail" may rouse popular enthusiasm, but the "Times" forms public opinion.

The leader is, as might be expected, reasonable in tone, even if it is inclined to favour the view that the trade has been well treated and is peevish because the Government has at the time placed a check on waste and exorbitant prices. "In order to promote the organisation of the private industry, then in a

very precarious condition, upon a commercial instead of a merely experimental basis, the War Office invited the 'trade' to build machines of the official design. Although this action has manifestly saved the 'trade,' it has naturally displeased those who would prefer to sell the Government their own private machines at their own price." A little reflection will show that, however plausible this may sound, it is, nevertheless, based on a misapprehension of the facts. To speak of "saving the trade," when the orders for these officially designed biplanes were issued chiefly to firms as financially unassailable as Vickers, Ltd., the Coventry Ordnance Works, and the British and Colonial Aeroplane Co., Ltd., and only one or two small firms of the type that really needed help, is surely a little absurd. No orders for the Mark B.E.'s have been given to the Short, Sopwith, or Avro firms. It may be that they were asked to contract, but the mere fact of their refusal to do so is proof that firms which design aeroplanes of at least as efficient types as the Government biplanes have not been "helped" in the way suggested. The trade has not been preserved by such orders, for the firms which carried out the greater part of the work cannot be truly described as the "trade." One or two firms which really needed help to keep them from extinction, and which possessed designers capable of good work, were kept waiting by false promises until too late.

The leader finishes with an attack on the principle of the Britannia Airship Fund, with which I personally cordially agree. "If the public, in spite of the failure of previous national appeals for the same purpose, insists on organising skating carnivals, 'tango' tea-parties, and the like, in order to relieve the Government of its obvious duty, the first consideration should be to find something that the Government really wants."

The first of the articles to which I refer appeared on the same day as the leader, which was of the nature of an introduction to the subject. After pointing out that the two questions of moment in service aeronautics are the supply of aircraft and the form of the air service finally to be adopted, he says "the campaign against what is known as the War Office 'system' in this matter appears to me to be so mistaken, so interested, and so lacking in breadth of



The Albatros amphibian biplane, one of the numerous German examples of semi-inherent stability.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
 LONDON AERODROME, HENDON.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
 from the FARMAN BROTHERS
 for the building of
HENRY & MAURICE FARMAN

Aeroplanes AND . **Hydro-Aeroplanes.**

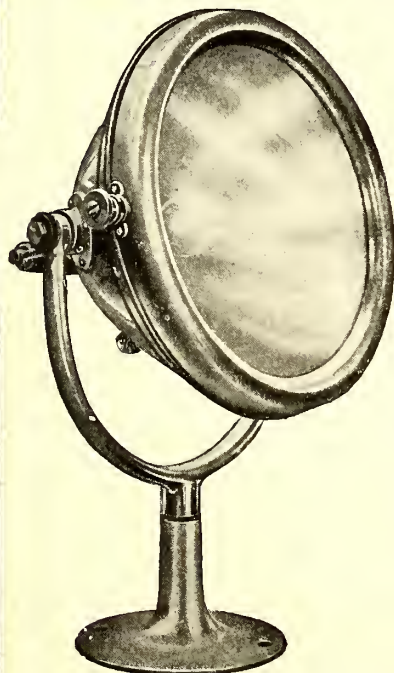
In Great Britain and the Oversea
 Dominions.

Works and Flying Ground :
 HENDON.

Offices :
 47, VICTORIA STREET, S.W.

ELECTRIC LIGHT

FOR
 WATER-
 PLANES



This is part of
 our Standard
 Lighting Set,
 and we shall
 appreciate en-
 quiries for any
 class of Electric
 Lighting for
 Cars, Launches
 or Flying
 Machines.

RICHARD PAPE, Ltd.,
 BELVEDERE, KENT.

"Palmer Tyres obviously stand in a class by
 themselves." (Daily Mail, 13th May, 1913.)

PALMER **CORD TYRES**

fitted to your car will give you
 greater speed, comfort and
 safety, together with a reduced
 petrol consumption.

May we send you the Palmer Cord
 Tyre Book in which you will find
 proof of the above ?

Will you write for it to-day ?

THE PALMER TYRE LTD.,
 119, 121, 123, Shaftesbury Avenue,
 London, W.C.

outlook that it seems desirable to lay before the public the true facts of the case." This he no doubt endeavours to do so to the best of his ability, but, it would appear, with not much insight into the "true facts of the case."

Among other things, he says the Government has during the past two years taken a number of steps to make up for past negligence in the matter of aeronautics. The first of these has been, he says, "to buy specimens of every really promising British and foreign machine and try them." The saving clause in this sentence is, no doubt, the phrase "really promising," and I shall be accused, if such as I can claim an answer, of an enthralling but peculiar love for the unpromising in aircraft if I say that quite a number of British and Foreign aeroplanes have neither been bought nor tried adequately. Certain cases will at once occur to the minds of readers, in which one or two machines have been purchased and have from one reason or another either been destroyed by accident or have proved less desirable than other types, and from that experience all other products of the firm concerned have received the "cold shoulder." There is an entire class of aeroplane, rightly popular in Teutonic countries, which until lately received no official order in this country, though, curiously enough, we have in this country one constructor who specialises, not unsuccessfully, in this type of machine. This abstention may or may not be very proper, but it does at least prove the inaccuracy of our knight-errant's first claim.

The next acts of virtue in his list are the organisation of the Advisory Committee and of the Royal Aircraft Factory. Then comes the military aeroplane competition which was brought about "that comparison might be made." Paragraph (e), which follows this, is of interest, and I therefore print it in full: "To buy the best machines thus indicated. (Three fatal accidents occurred shortly afterwards with machines thus purchased. Although not in the competition, the Government's own B.E. machine is known to have surpassed all the rest in almost every particular.)"

It would be gathered from this paragraph that the military aeroplane competition was almost a thing of evil, in that it brought about the purchase by the Army of three dangerous aeroplanes. In truth the circumstances were different. Certain prize-winning aeroplanes were purchased according to a previously announced intention. Other prize-winning machines of evident merit were ignored. The purchase or non-purchase mattered little really; the question at issue is the supposed ill-result. It reflects great discredit on the officials in whose hands lie the acceptance of new aeroplanes that machines which it appears were so dangerous should have been accepted at all. An aeroplane may be designed to pass any imaginable series of tests successfully and yet be inherently dangerous in construction. If this be the case, then surely there can be no compulsion to purchase. Safety is an essential and not simply a desirable attribute. As to the B.E. biplane, it was not entered in the

(To be continued.)

Automatic and Inherent Stability.

It is reported from France that five American competitors have entered for the "Prix de L'Union Aérienne pour La Sécurité en Aeroplane," valued at 400,000 francs (£16,000). The five are two Curtiss machines, one with a stabiliser of the Sperry type, and the other of a type not yet divulged; one Sperry gyroscope stabiliser—machine not mentioned; a Ludlow inherently stable aeroplane, without mechanical stabiliser; a Thaw stabiliser, on an unknown principle. Three other probable American entries are reported, of which the Wright is assumed to be one. So far, the only French contestants are the Dautre and Moreau, neither of which is of any real account. One hopes that the Dunne, Handley Page, Weiss-

competition, and is therefore out of court. One often hears that such and such a car won a race, but that, of course, the best car was never entered. That does not alter the fact that the first car won the race and deserves the reward appertaining thereto.

The next two paragraphs of his recitation of the Government's acts of vigour are of interest, as showing his point of view:—

"(f) To give orders to all British makers who could or would make to a selected design, in such numbers as would fulfil their capacity for output, so as to give them an opportunity of putting their works upon an industrial, instead of merely an experimental, basis.

"(g) To construct a certain percentage of machines in its own factory, with the object of being able to control prices and of keeping together a competent staff, with whom safety and other excellence of results should outweigh considerations of shareholders' profits."

I have already referred to the substance of this paragraph in the beginning of my article. The firms which received the greater number of orders needed no such charity to "place their works on an industrial basis," and the firms which did require sustenance and had in some degree shown themselves worthy of it were left without recognition. As to paragraph (g), it appears well on paper, but in practice the facts are different. It is not possible for a Government factory producing under uneconomical conditions to arrive with accuracy at any idea of cost. In the first case, having Government prestige and money behind such a factory, it is enabled to order and to buy large quantities of the more expensive materials at prices which are not open to smaller private firms endeavouring to work on a commercial basis. The interests of shareholders are the greatest incentive to economical production, and the "trade" is itself the surest guide to the proper price. Should one maker charge exorbitant prices, there are still others capable of reason, and those who have any knowledge of past industrial and economic history know artificial inflation of prices brings about its own reaction.

He recognises that the Royal Aircraft Factory is the *bête noir* of the "trade," and proceeds to explain why this dislike is uncalled for and unfair. The "trade," he says clamour to sell their own machines to the Government, and do not care to build to the official design. Yet it seems that, so badly organised are these firms, when they do receive orders they are, on an average, four months late in delivery. "The amount of delay has ranged between 410 days and 57." There is no good disguising the fact that the British aeronautical trade was notoriously badly organised and had so far been very remiss in the execution of orders. So it is with any young industry, and the fault on many occasions has lain with the Government. Constructors have had to wait weeks for an inspector and have in many cases been made to make various vexatious alterations at the last moment. In truth, one cannot see that either the Factory or the "trade" had any cause for self-congratulation over the management of business.

Bristol, and Cedric Lee machines will put in an appearance; any of them when developed a little further should be able to beat the "gadget" stabilisers. It would also be interesting to see some of the German stability machines competing.

Repairs in North Devon.

Aviators, whether terrestrial or aqueous, who happen to be in the neighbourhood of Barnstaple, Devon, and wish to get any small repairs done, will find that Garnish, Lemon & Co., Ltd., Pilton Works, Barnstaple, will be pleased to do work for them. The firm write that they thoroughly appreciate the big future there is for aeronautical engineering, and as labour is comparatively cheap in the district, they may be able to quote low figures for anyone in any part of the country.


ACCLES & POLLOCK, LIMITED.

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
ONE QUALITY—THE BEST.

OLD BURY, Send for 25" X 20" Chart of Full-Size Sections,—Post Free
BIRMINGHAM. TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts
should be made.

For Great Britain and the Oversea Dominions :

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

**CRITCHETT
WELDING & ENGINEERING CO.,
WELDING & BRAZING
.. SPECIALISTS ..**

Aluminium Welding Guaranteed.

Wire, Write or Phone
Tele. Address: Flexicabo, Watloo, London. Phone: 2424 City.
Postal Address:
80, BELVEDERE ROAD, LAMBETH, S.E.

CELLON

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

IMMEDIATE DELIVERY OF THE BEST DOPE.

Reg. Offices:—

17, OLD BROAD STREET, LONDON, E.C.

Telegrams: "AJAWB, LONDON." Telephone: 5359 London Wall.

Factory:—

**STIRLING CHEMICAL WORKS,
CANNING ROAD, STRATFORD, E.**

TEL

The Best Revolution Speed Indicator

Being mechanically operated possesses the following advantages—

Over 2000 TEL instruments supplied for use by the French, Russian, Italian and Spanish Naval and Military Depts. and the British Admiralty.

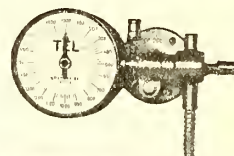
THE HASLER CO., 26 Victoria St. Westminster, London, S.W.

Phone Vict. 431

Uniform Dial Graduation

Not affected by changes in temperature or vibration.

Indicates with same accuracy high and low speeds.



HANGARS

50' x 45' ERECTED, £115

Any other Size to order.

GARAGES, CLUB HOUSES

and other Buildings. Estimates Free.

WIRE-WOVE ROOFING CO.,

108, Queen Victoria St., London, E.C.



NOTHING BETTER
A. V. ROE & CO., LTD., MANCHESTER.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," Jan. 6th, 1914:—

Royal Flying Corps, Inspection Department.—Second Lieut. Geoffrey de Havilland, Special Reserve, Military Wing, to be an inspector, dated December 7th, 1913.

Military Wing.—The undermentioned Lieuts. to be flying officers, dated Dec. 17th, 1913:—Donald S. Lewis, Royal Engineers; Henry Le M. Brock, the Royal Warwickshire Regiment, to be seconded; Robin Grey, Warwickshire Royal Horse Artillery, Territorial Force, to be seconded; Cyril G. Hosking, Royal Artillery, to be seconded; William G. S. Mitchel, the Highland Light Infantry, to be seconded; Richard E. Lewis, the West India Regiment, to be seconded; Francis J. L. Cogan, Royal Artillery, to be seconded; John Empson, the Royal Fusiliers (City of London Regiment), to be seconded; and Gilbert W. Mapplebeck, 4th Battalion the King's (Liverpool Regiment), to be seconded.

Special Reserve of Officers.—Royal Flying Corps, Military Wing.—Owen Bulmer Howell to be second lieutenant (on probation), dated January 7th, 1914.

From the "London Gazette," January 9th, 1914:—

Admiralty, January 9th.—The Lords Commissioners at the Admiralty hereby give notice that, with the concurrence of the Lords Commissioners of his Majesty's Treasury, the appointment of civilian technical assistant in the Air Department of the Admiralty has been placed under Schedule B of the Order in Council of January 10th, 1910.

War Office, January 9th, 1913.—Special Reserve of Officers.—Royal Flying Corps, Military Wing.—The undermentioned second lieutenants (on probation) are confirmed in their rank: Gordon N. Humphreys and David E. Stodart.

Admiralty appointments, Jan. 10th, 1914.—

Royal Marines.—Capt. and temporary Major E. L. Gerrard, R.M.L.I., to be Major by brevet, to date January 3rd.

Admiralty Appointment, January 12th.—Assistant-Paymaster P. E. Goldsmith, to the "Pembroke," additional, for Naval Airship Section, Farnborough, to date January 21st.

NAVAL.

At the Naval Flying School at Eastchurch during the week the following machines were in use, amongst others: Short 3, 80-h.p. Gnome; Short, S38 type, Nos. 2, 62, 64, 65, 80-h.p. Gnomes; Sopwith 33, 80-h.p. Gnome; Deperdussin 7, 80-h.p. Gnome, and Maurice Farman, 70-h.p. Renault. Much flying was done by Comdr. Samson, R.N., Lieut. Davis, R.N., Lieut. Osmond, R.N., Capt. Courtney, R.M.L.I., and P.O. Andrews, R.N., in spite of the weather. On Monday, 5th, the majority of the personnel of the Naval School returned from leave. Wednesday, 7th, Lieut. Osmond, R.N., was out on Short 64, Comdr. Samson, R.N., on S3, and Capt. Courtney, R.M.L.I., was instructing pupils on S2. On Thursday, 8th, Lieut. Osmond, on S65, was flying nearly all the morning, and P.O. Andrews on M. Farman made a fine prolonged flight. Capt. Courtney was instructing on S2. About mid-day, when Capt. Courtney was flying, an absolute gale sprang up, and though a very bumpy descent followed, he landed in a good position on the aerodrome. While "taxying" home the wind was quite ready to turn the whole outfit over, but it got in safely. On Friday, 9th, just before dusk, Lieut. Davis had S65 out in a wind of about 30-m.p.h., and after a couple of very rough circuits he deemed it wise to land. On Saturday, 10th, Lieut. Davis made a good high flight in the rain. Later when it cleared up Comdr. Samson took up S3 with a passenger and made a couple of cross-country flights. After lunch the weather improved, Comdr. Samson making several long flights on S3. Capt. Courtney on Dep 7 was making steeply banked turns. Lieut. Davis was flying high on Sopwith 33 in fine form. Lieut. Osmond, on S65, made extensive high flights, and P.O. Andrews flew well on M. Farman, 70 Renault.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing). Diary of work for week ending January 3rd, 1914:—

No. 1 Squadron (Farnborough).—The bulk of the airship

matériel of this squadron was handed over to the Navy on January 1st.

No. 2 Squadron (Montrose).—The squadron was employed in moving to the new flying ground, and in overhaul and repair work. The weather being very rough has entailed the expenditure of much time clearing snow from the sheds, etc.

No. 3 Squadron (Netheravon).—During the week a number of reconnaissance and instructional flights were made.

No. 4 Squadron (Netheravon).—Three new B.E. aeroplanes were taken over from the depot at Farnborough and flown to Netheravon.

No. 5 Squadron (Farnborough).—Instructional flights were made by the pilots of the squadron, and overhaul and repair work carried out.—War Office, January 6th, 1914.

Flying Depot (Farnborough).—The week was devoted to experimental work and repairs.

The five officers of the Indian Army who are to organise the Indian Army Flying School, and who were attached to the Royal Flying Corps last summer, have now returned to India. A number of Mark B.E. biplanes have been ordered. Captain Massy is in command. Mr. Parr, who essayed to fly the little Piggott biplane in the Military Aeroplane Competition last year, and has more recently been at the Royal Aircraft Factory, has gone out as chief tester and mechanic.

Full dress uniform, somewhat similar to that of the Royal Field Artillery, is to be provided for the Royal Flying Corps, Military Wing. The tunic is blue with "R.F.C." in monogram form on the buttons, with this will be worn blue overalls of cloth with a broad red stripe. Pilots will wear the usual badge, a pair of conventional wings, on the left breast. The first public appearance of the new uniform was on the person of Sergeant Griffen, R.F.C., who was married in it on Saturday last, January 10th.

Squadron 2 at Montrose is still erecting R.A.F. tents on the Links, while close by the work of erecting the sheds is being rushed on by the contractors (Messrs. Cowieson, of Glasgow). The weather has been very unfavourable for flying, but Capt. Becke was out testing B.E. 230 on Wednesday while B.E. 272 was also piloted in a short district flight. Every admirer of Capt. Becke's flying is waiting for his long distance flight on B.E. 230. It appears that some defect in wing construction has been the cause of most of the delay.

The marriage arranged between Captain Francis Fitzgerald Wadron, 19th Royal Hussars and Royal Flying Corps, and Miss Marjorie Evelyn Sutherst, will take place on Saturday, the 24th inst., at the Rosary Church, Marylebone Road, at two o'clock. The reception will afterwards be held at 78, Avenue Road, Regent's Park, lent by the Marquess and Marchioness Townshend.

In the Town Hall at Farnborough, on the afternoon of the 7th inst., Capt. C. M. Waterlow, R.F.C., produced a children's fairy play called "A Sailor in Fairyland," for the music and stage management of which he was entirely responsible. In the libretto, which was written some time ago, he had collaborated with the late Lieut. R. A. Cammell, R.E., who was killed while flying at Hendon. This is the fifth operetta composed and produced by Capt. Waterlow. The production, which was, like Capt. Waterlow's previous plays, a great success, was given in aid of charities connected with Farnborough parish church. It is to be repeated later by the same children at Camberley, Aldershot, and Farnham.

FRANCE.

It has long been customary in most countries for officers who have acquired skill in certain directions to accept posts with firms dealing with the particular branch of the service in which they have specialised. As a sign that aviation is already expanding along the same lines as other specialised branches, we find the same thing occurring in the aeronautical services. It is some time since Lieut. Jean de Conneau of the French Navy joined the Blériot firm, and afterwards associated himself with certain flying boats. More recently Commandant Félix joined the Nieuport firm, and now Lieut. Delage, the first French naval officer to turn his attention seriously to seaplanes, has also joined the Nieuport firm in charge of their hydro-aeroplane section.

Apropos of the "National Fund" affair, M. Girod (député for Doubs), who was a member of the Parliamentary Committee appointed in June last to investigate the question of military aeronautics, has published a letter in the French Press inquiring why the report of that committee, which, he says, "is not devoid of interest," was not made public according to the usual custom in these matters.

On January 6th M. Bielovucic put a new Ponnier cavalry type monoplane through its reception tests before a military committee consisting of Col. Caron, Col. Etienne, Commandant Lucas Gerardville (the Wright pupil who never learned to fly), and sundry minor officers. The machine got off in about 70 ft., and mounted to 5,000 ft. in five minutes with a load of 380 lbs., and pulled up in 65 ft. on landing. Afterwards Lieut. Germain piloted the machine.

Despite their neglect by the French Army last year, the Hanriot-Ponnier combination does not seem to be discouraged, for a flourishing Hanriot school is in existence at Antibes.

Mr. Dick Farman, though he does not consider himself a pilot, has recently been testing machines ordered by the French Army.

Four new hydroaeroplanes have arrived at Fréjus, which is rapidly taking the first place among the French naval air stations. These machines comprise two Nieuport monoplanes, a Bréguet biplane, and a Caudron biplane; the latter will be flown by Lieut. Winter, who has recently arrived.

The cruiser "Foudre" has recently been operating between San-Raphael and Mentone, in conjunction with two seaplanes, a biplane, and a monoplane, piloted by Ensigns Janvier and Destrem. M. Herck, Naval engineer, has been on board in order to study the necessary establishment for a seaplane station.

At Villefranche on the 7th. Naval-Lieut. Fournier, piloting a Voisin biplane, dived into the sea a mile from the air station. Picket boats immediately went out and rescued him uninjured. The machine was taken on board the "Foudre" for extensive repairs.

GERMANY.

The Zeppelin L Z 22 has just been completed at Friedrichshafen. This airship is intended for the German Army, and will be numbered Z. VII. It will be stationed at Dresden, where a new shed is in course of construction. It is said that the gondolas containing the motors have been placed

lower, and that no wind shield will hinder the free circulation of the air between the envelope and the gondola. It is thus hoped to avoid a repetition of the accident which destroyed L. II. It is reported that the new Zeppelin, instead of having three motors of 170 h.p. each, will now have four motors of 200 h.p., and that these new 200 h.p. motors are considerably lighter than the old 170 h.p. In fact, the four only weigh about the same as the three 170's. It is expected that the speed of the new Zeppelins will approach closely to 60 m.p.h., the fastest machines at present reaching about 48.

At the present moment there are in Germany sixteen sheds for dirigibles, seven holding one machine each, and nine being double sheds. The latter are those at Friedrichshafen and Potsdam, belonging to the Zeppelin Company, one at Dresden belonging to the town, one each at Johannisthal, Leipzig, and Hamburg, belonging to private companies, and one each at Köln, Metz, and Königsberg belonging to the War Office. The single sheds are those at Frankfurt and Baden belonging to the D.E.L.A.G., a private company, that at Düsseldorf belonging to the town, one at Mannheim belonging to the Schütte-Lanz Co., one at Gotha belonging to a private company, and those at Fosen and Liegnitz belonging to the Ministry of War. Others are in process of construction at Allenstein, Trier, Braunschweig, Darmstadt, Stuttgart, München, Dresden, Friedrichshafen, Düsseldorf and Emden.

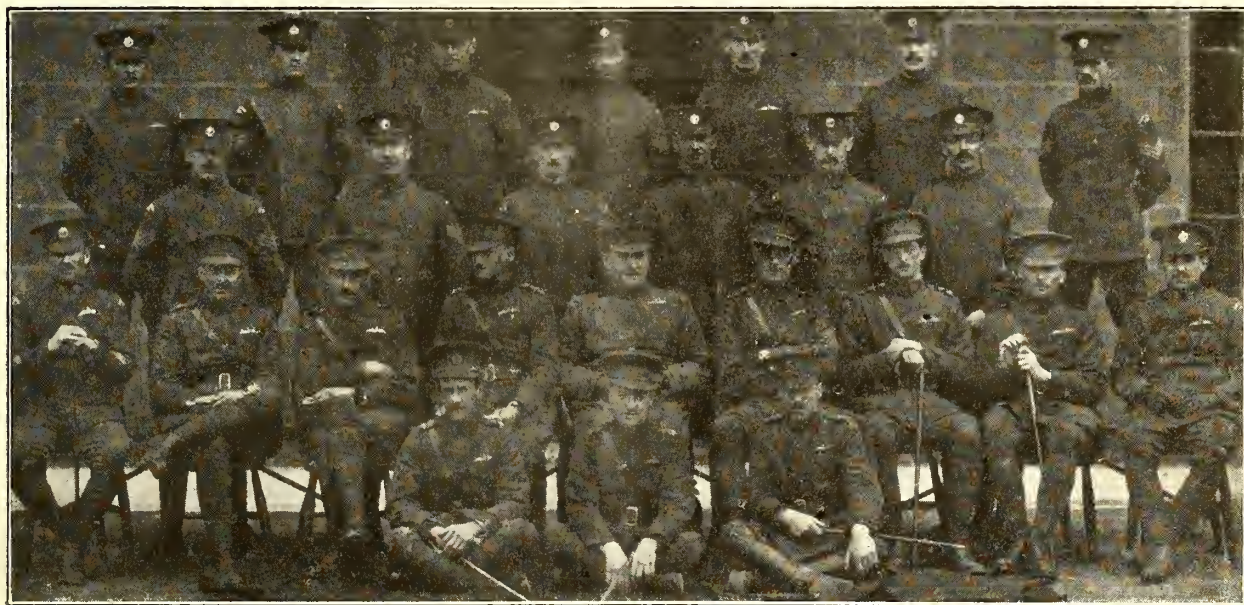
Mr. Curtiss has just delivered to the Imperial German Navy a 100-h.p. flying boat, which has arrived at Kiel, where it is to be put through its tests by Mr. Cooper.

Floods are reported to have damaged the Naval air station at Putzig, near Dantzig, the starting ground having been completely destroyed.

A full military funeral was accorded Richard Remus, the young Army pilot, the 1st Flying Company stationed at Doeberitz, and a strong complement of officers being present. During the ceremony, Remus' teacher, Kiessling, circled above the graveyard on a double-decker, with black flags flying at half-mast.—B.

ITALY.

Signor Mario Arioli writes from Milan:—"Bille has been here for more than a week to pass through the military tests some H. Farmans built in Italy by the 'Societa Savoia.' As you very probably know, M. Santoni is the director and promoter of this company, which has acquired the Farmans' patent for Italy. I had opportunity to see their factory at



OFFICERS AND SERGEANTS OF No. 2 SQUADRON, R.F.C., MILITARY WING.—Top row, left to right:—Sergeants Kemper, Kessler, Mead, Borne, Mullins, Neathy, Hatchett. Second row:—Sergeants Aspinall, Smith, Baxter, Jillings, Rombold, Felsted. Third row:—Sergt.-Major Fletcher, Lieut. MacLean, Capt. Tucker, Capt. Becke, Major Burke, O.C. No. 2 Squadron, Capt. Longcroft, Capt. MacDonell, Lieut. Harvey, Sergt.-Major Measures. Sitting in front:—Lieuts. Dawes and Martyn, and Capt. Waldron.

Turro by Milan, and this is really the finest aeroplane factory in Italy. They turn out some splendidly finished machines, which have nothing to lose if compared with the originals. They are also extremely busy, because they have on order for the Government thirty-two machines.

"Bille is every day thrilling the Milanese public by his terrific evolutions in the air, nearly always accompanied by one passenger. What he does in the air is simply marvellous, and in some of his manoeuvres he beats Chevillard. Last Sunday, by kind permission of the military authority, who lent their ground at Tagliedo, near Milan, and of the Società Savoia, who has lent the pilots Bille and Signorini, La Lega Nazionale Aerea (Aerial League) had arranged exhibition flights, and people in thousands went out to the Aerodrome to see the prowess of Bille. From the way he was piloting his Italian-built Farman you could see how easy it answered to the controls. Several times flying with a passenger he took both hands off the controls, and the machine was flying very steady for a certain length of time. At the end of the exhibitions the public were so enthusiastic that they broke the military lines and wanted to carry shoulder-high the hero of the day.

"Also organised by the Lega Nazionale Aerea, the Sunday before last took place at S. Siro (the Milan racecourse) the consignment of the flag given by the Milanese ladies to the 'Citta di Milano' (Forlanini).

"The Aerial League does these things very well. All these ceremonies are exclusively for their members, but as the subscriptions cost only 3 frs. per year, everybody joins. Thousands of new members were made last Sunday at the doors of the Tagliedo Aerodrome."

RUSSIA.

An attempt has been made in Russia to raise a public fund for military aviation, and naturally the subscriptions have been largely solicited by local officials desirous of acquiring merit with their superiors. As a result, the peasants of a certain district have written to their Prefect, pointing out that they have no money because the times are hard, but, because this subscription is a patriotic duty and they wish to do their best, they beg that they may each spend a certain number of days in prison. The reason for this seemingly strange request is that the Russian law authorises peasants to expiate in prison fines which they are condemned to pay in cash at the rate of so much per day. To what lengths does patriotism bring us! There is something pathetic in the idea. But what a sidelight is thrown on Russian officialdom when peasants are unable to distinguish between a request for a subscription and the infliction of a fine.

A new Russian air station is to be installed at Libau on the

Baltic in addition to those already existing at Grodno and at Riga. At the last-named place is a factory where 22 mono-planes of French design are being built for the Government.

UNITED STATES.

Three new type Curtiss flying-boats have been put through their tests by Mr. Francis Wildman in record time. The best performances were those of "C 4," which climbed 1,500 ft. in 10 mins., and showed a speed range of 64.4 to 45.2 m.p.h.

Another of the "Owl" machines (over land and water) has been delivered to Capt W. I. Chambers, U.S. Marine Corps. This machine somewhat resembles a bat-boat. The short pontoon is closed except for the cock pit, whose occupants are shielded by a high bow deck. The wheels, which are housed within the hull, are raised and lowered by a hand lever, and locked in either position by a second lever.

MEXICO.

Last year for some months one heard every now and then that the young French aviator Didier Masson had been making himself acutely objectionable to the Mexican Government troops by dropping bombs from an aeroplane which he was flying on behalf of the Mexican revolutionaries. Only last week did it become known that Masson had been captured by the Federalist, or Government, army, and shot by the orders of General Ojada. Masson went to America as mechanic with Louis Paulham, and remained there to fly himself. In 1911 he broke his leg in an accident, and afterwards flew on a machine presented to him by one of his admirers. He was captured at Las Guernas through his engine stopping over the town and forcing him to come down in the Federalist lines. A few hours later he was shot as a spy. One compares his treatment with that accorded to the Russian aviator Kostine, who flew for the Bulgarians, and who died a natural death recently, when he descended in the middle of the besieged city of Adrianople, and was treated honourably as a prisoner of war by the so-called "unspeakable Turk." Unfortunately for one's finer feelings another report says that M. Masson has merely retired from aviation and is making a fortune in hides and skins in a more peaceful portion of Mexico.

FOREIGN NOTES.

France.

President Poincaré has received an invitation from the Aero Club de France to assist at the fete organised by the club for February 7th. In accepting, the President seized the occasion—on the suggestion of M. Léon Barthou—to found a "President's Prize" for the encouragement of pilots who had never won anything at the time of competing.

M. Emile Védrines has almost recovered from the injuries which he suffered while setting out to beat the speed record



Signor Santoni (late of the lamented British Deperdussin Co., and now of the Savoia Co.), on left, starting as passenger with M. Bille at Tagliedo.

(when he achieved an average of 130 m.p.h. before his machine took fire). On Thursday he flew for 1½ hours at Reims in his Ponnier (Gnome). He is preparing for a "grand raid," probably towards Morocco. He will resume his speed efforts in May.

It was M. Gibert, notable for his European Circuit flight in 1911, who alighted on a roof near Issy with a Vendôme monoplane last week, and not M. Gilbert. He has only just returned to aviation.

At Vernon, M. Burri, the hero of the Balkan wars, has been making long flights on a new waterplane built by the Franco-British Aviation Co., 80-h.p. Gnome, and the Danish Naval Lieut. Hoeck has also been flying one of the firm's machines.

For the time being M. Garros has given up the idea of beating the height record at San Raphael, and is booked for exhibitions at Barcelona, Toulon, and Bordeaux.

Mr. Glenn Curtiss, who, happy man, is to spend some time on the Côte d'Azur, is going to make experiments there with the Sperry stabiliser on a flying boat.

M. Salmét, who has earned among certain of his compatriots the nickname of "Védrines II," has been flying regularly for the "Daily Mail" between Nice and San Raphael dropping packages of the paper at Antibes, Cannes, and Hyères. The voyage takes about two hours.

On January 6th, the French aviator Maïçon, who is demonstrating a Caudron seaplane, 100-h.p. Anzani, along the South Coast, took M. Malikoff, the President of the Russian Duma, for a trip from Beaulieu to Monte Carlo and back.

M. Blériot continues his parachute experiments. The primitive sack of sand has been replaced by a dummy of realistic appearance and weight. This figure was recently released by M. Blériot at a height of nearly 1,000 ft., and landed safely in 1 min. 20 secs.

M. Brodin continues his trials with the Blériot biplane, which is showing excellent flying qualities. It has climbed 8,200 ft. in 12 mins.

A play entitled "Plein Vol" has been produced at Reims, dedicated to the memory of the late M. Chavez.

M. Gilbert has resigned from the "Association Amicale des Aviateurs" because he says that "it ought to be the duty of the Association to prevent certain of its members from taking part in exhibitions below a certain tariff, in order to prevent aviation from falling to the level of a customary spectacle at fairs, and to prevent pilots from becoming chauffeurs of acrobatic aero-taxies."

M. Chanteloup, the first biplane loopster, is at Troyes, looping, describing letters of the alphabet vertically, doing the "gimlet-tourbillon," and performing the "tourniquet of death, a novel exercise, exceedingly emotional." On Sunday he did the "tourbillon" descent tail-first, in wind and rain. Subsequently he was carried in triumph to the official tribune—a pleasing alternative to the local cemetery.

One of the latest loopsters is M. Galtier, who on January 7th looped the loop at Chateaufort on a Caudron, 60-h.p. Gnome. M. Chemet also attempted to loop on a Borel, but only succeeded in doing a tail slide, and descended in order to have the travel of his elevator enlarged. On the same day M. Gilbert, at Villacoublay, spurred on thereto by the rhapsodies of MM. Leon Morane and Audemars, who had been looping as passengers with M. Garros, at San Raphael, looped the loop. The machine he used was an ordinary standard Morane-Saulnier with a 80-h.p. le Rhone. A day later M. Chemet succeeded in looping and performed a number of emotional feats.

Also on the same day Mr. Crawshaw, who is well known at Hendon as a capable Blériot pilot, looped the loop at Buc on a Blériot which he had just bought. All told, there are now something like 20 aviators who have looped the loop, so it ceases to be a scientific demonstration and becomes a feat of flying.

Yet two more names have been added to the roll of loopsters—MM. le comte Honoré de Lareinty-Tholozan and le baron Pasquier, both on Blériots.

It is claimed by the French papers that Miss Trehawke-Davies was not the first woman to loop the loop as a passenger, because Garros had done so with a female passenger a fortnight before. Unfortunately they do not answer the familiar question "Who's the Lady?"

It is reported that on the 4th, M. Guillaux, who was suspended from competition for malpractices in the Pommery Cup competition, succeeded in looping the loop backwards on a Caudron as the result of a tail slide.

Tunis.

The "Association General Aeronautique" is erecting two hangars 72 ft. square at the camp of Kassar-Said, Tunis. These will be ready in March.

Algiers.

M. Hanouille has been looping in excellent weather, creating such enthusiasm that the spectators break down the barriers and carry him shoulder high.

Germany.

The curators of the National Aviation Fund have now issued the programme for the present year, a sum of 400,000 marks (£20,000) being at their disposal for distribution among aviators of German nationality. Military flyers receive trophies of equivalent value. The new propositions differ from those of 1913 as prizes will be given for cross-country flights only instead of flights over enclosed grounds as was the case last year. The cross-country flights again are divided into two categories, town and income contests. The prizes for the town flights commence with one thousand marks for two hours, and increase pro rata, and will only be paid if, apart from descent and landing, the journey is made outside a flying ground. The minimum for a journey of two hours is sixty kilometres away from an aviation ground, for three hours ninety, and so forth. The income prizes do not vary from those of last year. A monthly sum of 2,000 marks not exceeding 20,000 marks in all, will be awarded for the longest German duration flight, which must, however, be at least a six hours' one. A monthly income of 4,000 marks will be awarded for the longest distance across country within twenty-four hours, not exceeding a total of 20,000 marks to one person. The acceptance of a prize or monthly income renders the pilot liable to serve a term of three weeks in the army under special conditions.

The hydro-aeroplane three-country flight Warnemuende-Copenhagen-Christiania was the subject of a discussion at Copenhagen last week, when it was decided to hold the event from August 15th to 25th, starting at Warnemuende, in Germany, and leading via Copenhagen, Aarhus and Friedrichshafen to Christiania, including a landing in some south Norwegian town. Should Sweden decide to participate, a landing will be effected in Malmö too. The meeting will take place solely on the condition of 50,000 marks being subscribed for prizes.

2,410 flights took place at Berlin-Johannisthal in December, carried out by 134 pilots, who remained aloft 313 hours. Breitbeil, on a Ago biplane, headed the duration list with 19 hours 11 mins.; Reiterer, Etrich, made the most ascents with 278.

The German Government, always reasonable when approached in a proper spirit, has granted permission for the Russian aviator Vassilieff to cross Germany in the course of a flight from Petersburg to Paris. It is said that both Russian and German Governments are disposed to lighten the rigour of the rules governing their frontier regulations.

Austria.

The Schicht prize of 100,000 kroners, presented to the Austrian Aero Club by the firm of that name, is to be used for a circuit through Austro-Hungary, the date being April 19th to 26th. Starting in Vienna, the route as sketched out at present, will lead via Prag, Theresienstadt, Bruenor, Pressburg, and Buda Pesth, back to the Austrian capital. Although the event is open for pilots of Austrian and Hungarian nationality only, its scope will be extended to include foreigners should not six entries at least be received by March 15th.—B.

Spain.

M. Vallier gave a very successful exhibition at Figueras before a concourse of 7,000-8,000 spectators. M. Garros is looping sensationally at Barcelona on his Morane Saulnier.

Holland.

The aviator Van Mell, flying a hydro-aeroplane above the Meuse, near Rotterdam, fell into the river; he was rescued without delay, but the machine was wrecked.

M. Chevillard has been experiencing unhappiness at the Duindigt aerodrome, near the Hague. On Saturday he was

to have given a demonstration of plain and fancy flying. First of all, the organising committee failed to provide the petrol, then they omitted to put down the necessary cash deposit. To show that he was prepared to fly M. Chevallard completed a single circuit. It appears that the organisers were not on hand at the time, and, later on, sent an officer of the law to trouble the aviator for not being ready to fly according to contract. M. Chevallard retorted by sending an officer of the law to the committee to demand his money. At this point it appears that the said committee decamped with the "gate." Whereupon M. Chevallard and his manager, M. Poumet, appealed to the French Consul, with what result is not known.

Egypt.

There has recently been quite a concourse of aviators at Cairo, for in addition to Mr. McClean, Mr. Alec Ogilvie and Mr. Oswald Watt, there have been M. Schneider (of Schneider Cup fame), MM. Bienaimé, de Lambert, Tissandier, Bonnier, Pourpre, Védrières, Roux and Dufresne. M. de Lambert and his friends are chiefly concerned with hydroplanes driven by aerial propellers.

On Tuesday, January 6th, Mr. F. K. McClean left Cairo for Khartoum in his Short waterplane (60-h.p. Gnome), accompanied by his sister and Messrs. Ogilvie and Spottiswoode. On the same day Mr. Short went to Assiut to take the place of Miss McClean. On Wednesday Mr. McClean was reported to have left Minia at 9 a.m. The machine has been having engine trouble owing to the immoderate consumption of petrol.

M. Marc Pourpre, on Tuesday, flew from Menshah to Luxor in a troublesome wind. On Wednesday he left Luxor at 10.10 a.m. and arrived at Wadi Halfa at 2.15—a two-day journey in four hours. On Friday, leaving Wadi Halfa at 9.30 a.m., he arrived at Bou Hamed 11.25 a.m.

M. Pourpre arrived at Khartoum at 2.5 p.m. on January 12th, thus bringing his flight from Cairo to a happy issue. He flew the 320 miles from Bou Hamed in 4 hrs. 15 mins. M. Pourpre, who is the first aviator to arrive at the capital of the Sudan, received a tremendous ovation from the inhabitants, who were assembled en masse outside the town. Sir Reginald Wingate, the Sirdar, heartily welcomed the aviator, who stated that he had had a splendid flight. One is glad that a sportsman and gentleman like M. Pourpre has captured the honour of being the first to fly along the most historic water-way in the world.

Jules Védrières continues to earn the epithet of the "flying apache," which was long ago bestowed upon him. The story of his recent adventures is briefly this: After forsaking their flight across Asia Minor, owing to the destruction of their Borel, MM. Daucourt and Roux, knowing that they were being followed by their fellow-countrymen, left stores of petrol for the use of MM. Bonnier and Védrières. The first to arrive was Védrières on his Blériot, and in his usual manner he made himself offensive to the ever-courteous Turk. The Turks, somewhat naturally, refused to recognise the fact that Védrières owned the earth as well as the sky, and consequently no petrol was forthcoming and much delay occurred before any arrived. When, however, M. Bonnier, who is one of the most charming of men, arrived on his Nieuport, the petrol was promptly handed over to him, and there is no doubt but for a smashed propeller, he would have arrived at Cairo before Védrières. Before Védrières arrived at Cairo he had become fully convinced that M. Roux had been the prime cause of his not obtaining petrol, and when that gentleman advanced to greet him on his arrival at Cairo the apache promptly smote him. A somewhat humorous situation then arose, for the undoubtedly aggrieved M. Roux, apparently forgetting that he was a gentleman and could not fight with canaille, sent his seconds to Védrières, whereupon Védrières, on the strength of being a member of the Legion of Honour, refused to fight M. Roux, who, he said, was a mere civilian. However, becoming indignant with the behaviour of the Ligue Nationale Aérienne, which had finally disowned him because of his conduct, Védrières telegraphed a challenge to Dr. René Quinton, the president of the L.N.A., who, curiously enough, seems to have accepted. Dr. Quinton is a specialist who apparently has an idea that subcutaneous injections of sea-water are a cure for all mortal ills, so one might suggest that the duel should be fought with hypodermic syringes at 30 paces. Meantime, Védrières had succeeded in embroiling himself with the French

diplomatic circle at Cairo, and as a result the whole of the French colony cancelled all the invitations which he had accepted. Consequently Védrières took up his residence at the Pyramids Hotel, as far as possible from the French official quarters. All of which gives strength to the old proverb that one cannot make a silk purse out of a sow's ear.

New Zealand.

It is reported that Mr. J. W. T. Scotland, who will be remembered as a very promising flyer when he took his certificate at the Hall School at Hendon some three months ago, is now giving exhibitions in his own country, New Zealand, and not only has he made excellent flights there, but one hears that he is making quite large sums of money.

U. S. A.

On December 17th the Aero Club of America commemorated the tenth anniversary of the first flight by holding an exhibition of flying on Hempstead Plains, and a banquet to Mr. Orville Wright at their New York Club house.

An arrangement has been completed by the Benoist Aircraft Company to run a flying-boat ferry between Tampa and St. Petersburg (Florida) during the winter season. The distance is about nineteen miles. This service should have a good chance of success as the sole public means of conveyance between the two towns at present is a little motor-boat. The Benoist school also has been removed to St. Petersburg for the winter.

Between May and November, 1913, no less than forty-four flying boats have been sold to private owners in the United States alone.

Argentina.

Among recent passengers at the Farman School at Buc was Don Emilio Escobar of the Argentine Cavalry.

Brazil.

The Societa Gino Buccelli & Co., of Rio Janiero, have ordered from the well-known Italian constructor, M. Enea Bossi, a dual control, three-seater biplane of 300 h.p., provided with wireless apparatus and bomb-dropping fittings. The specification demands that it shall lift 1,000 kilogrammes and average 50 m.p.h., and shall pass a test of two flights of two hours each. The machine is to be a biplane with 1,500 square feet of surface.

The Britannia Challenge Trophy.

The following notice has been issued by the Royal Aero Club:—

"The Britannia Challenge Trophy, presented to the Club by Mr. H. Barber, will be awarded to the British aviator who, in the opinion of the Committee, shall have accomplished the most meritorious performance in the air during 1913.

"The Committee of the Club will consider the award at its next meeting on the 20th inst., and would like members of the Club, and others interested in aviation, to send in particulars of any performance which, in their opinion, should be taken into consideration by the Committee in making the award. The Committee will also be glad to have suggestions from aviators themselves as to the respective merits of various performances which they may consider worthy of attention, as the opinion of practical fliers will naturally be of great assistance to the Committee. Letters should be addressed to the Secretary, Royal Aero Club, 166, Piccadilly, London, W., and should reach the Club not later than Monday, the 19th inst."

In taking the unusual step of asking members and non-members of the Royal Aero Club to assist the Committee in its deliberations, the Committee, as representing the Club, have done a highly praiseworthy thing, and one sincerely hopes that the effort to arrive at an official decision with the aid of public opinion will be very well supported.

There may be many flights which seem of no special account when considered merely as journeys from place to place, but may, owing to the conditions under which they were performed, be particularly meritorious, and those conditions may be unknown to the Committee. For instance, Captain Becke's flight of approximately 400 miles in the day from Montrose to Limerick is inferior in length to Captain Longcroft's flight from Montrose to Farnborough, via Portsmouth, but he had to fly over very rough country, he had to cross the Irish Channel, and he had to find his way over vast stretches of particularly featureless country in Ireland. Also, his compulsory stops at

Stranraer to fit safety floats, and on the other side to take them off, at cost time, and the mere act of alighting and starting entailed extra work, so his flight might well be considered the most meritorious of the year. On the other hand, Captain Longcroft's flight was made in a short November day and in bad weather, which adds to its merit. Some people might feel inclined to place the same pilot's flight to Alnmouth with Lieut.-Col. Sykes above it in merit because it is a world's record. Others again might consider his flight with a 75-mile an hour wind at Montrose an even more "meritorious performance." Then the Senior Service may have claims on account of certain flights made by naval pilots. If one had full details of the work of Lieuts. Longmore and Oliver, R.N., during the Naval Manœuvres they might rank high in the competition, and some fine flights were made by Commander Samson, R.N., from H.M.S. "Hermes," and by Lieut. Seddon, R.N., from Yarmouth out over the North Sea to rendezvous with vessels at points indicated only by bearings. Surely the skill shown in navigation entitles these to notable places as meritorious performances. One hopes that the Admiralty and War Office will permit details of all the most notable flights by sailors and soldiers to be placed before the Committee for consideration, and will allow a full account of the best to be published, if only to show the British taxpayer what is being done by the Royal Flying Corps.

Among civilians there are many good flights to be considered, as for instance, Mr. Hawker's attempt in the "Daily Mail" seaplane competition, though, unfortunately, it cannot compare with, say, the German Stoeffler's 1,350 miles in 24 hours. There is also Mr. Hamel's flight in a storm from Dover to Cologne, and there is Mr. Grahame-White's water-plane trip from Paris to London—the first on record. In another direction, some people might consider Mr. Hucks entitled to the trophy for being the first British pilot to loop the loop, and others might prefer Mr. Hamel's claim for having done it on a standard type machine. Others, again, in this category, might say Mr. G. Lee Temple deserved it for being the first to exceed the perpendicular in a descent.

If feats of sheer skill are going to be taken into account, I would put in a claim for a certain young officer I once saw at Farnborough flying a certain very experimental tractor biplane which Colonel Seely, in his panic over the Army Estimates, bought from Mr. Grahame-White. I have never seen anything which needed so much handling, and his self-control in not letting it be smashed when he had a fair and easy chance was, from the Exchequer's point of view, a highly meritorious performance. I fear we must rule this out, however, along with any claim for a passenger-carrying record which may be put in on behalf of the officer who flew with four R.A.F. passengers from Farnborough to Montrose, for the Committee will probably not allow mice to count, and, anyhow, two of them were dead, which would disqualify him in any case.

However, it is to be hoped that the Committee's request for assistance of so simple and so interesting a kind will meet with a willing response from such members of the Royal Aero Club as may know anything about flying, and I feel sure that the opinions of enthusiasts who are neither aviators nor members will be gratefully accepted also. It may be well to remind those who are good enough to respond that only performances by British aviators count.—C. G. G.

Modifying Prohibited Areas.

A meeting of the British Manufacturers' Sub-Committee of the Royal Aero Club Committee was held on Tuesday, January 6th, when there were present:—Mr. J. E. Hutton (Wolseley Tool and Motor Car Co., Ltd.), in the Chair, Capt. H. Lutwyche (A. V. Roe and Co., Ltd.), Mr. Fred May (Green Engine Co.), Mr. T. O. M. Sopwith (Sopwith Aviation Co., Ltd.), Mr. Howard T. Wright (Sir J. Samuel White and Co., Ltd.), and Mr. Harold Perrin, the Secretary.

The Committee discussed the Aerial Navigation Regulations issued last year, and one gathers, quite unofficially, that the matter under consideration concerned the desire so often expressed of late that certain modifications might be made in the prohibited areas which would remove the hindrance many of these areas form at present to the development of the British seaplane industry.

It is evident to anyone who studies the map of England that there is now the opportunity for the establishment of a great industry in seaplanes in the vicinity of Southampton,

but the prohibited areas extending for 3 miles round Southampton Docks, the Needles, and other more or less strategic points in the district make it almost impossible for a pilot to make an extended flight without contravening the regulations. A modification of only a few of these areas in favour of British pilots on British-built machines would remove the obstruction to the development of such businesses, and would enable manufacturers to test and demonstrate their machines without trouble. The establishment of the seaplane industry, which will some day be almost as great a thing as ship-building, would be of the greatest advantage to Southampton itself, so one hopes that the Home Office and the Admiralty will be reasonable, if the above-mentioned Committee's deliberations result in requests in this direction.

In yet another direction modification is needed. At present the string of prohibited areas down the Thames make it impossible for pilots to cross the river except by a narrow stretch at Purfleet, which is really much too close to London. Most of the Thames areas have little strategic value and seem to exist chiefly because someone is afraid of pilots dropping spanners on to powder-hulks or the like. Therefore, many of these areas could easily be modified with the result that aerial traffic would be greatly facilitated, especially that between Paris and London.

To assist this same traffic extended landing area is also needed, for pilots crossing from Boulogne or Calais have at present to keep over the sea till they are well to the North of Dover, a most dangerous route in misty weather, for they may easily miss the coast, as the late Mr. Cecil Grace did, and be lost in the North Sea. The safest course is straight for Folkestone, and it should be simple to arrange a landing area to the West of Dover, which would not bring the pilot over any of the secret places of our coast defences.

One can see no actual reason for a landing at all, and it should be quite sufficient if a pilot were allowed to drop a note at some definite place reporting his arrival, and continue his journey to London without stopping. Presumably the idea in compelling a landing is to stop smuggling, but a clever pilot could easily fly high and pass unobserved, drop his load at some arranged place inland, and then go back and land quite innocently. Who is to say whether a long spiral started from seaward or landward?

It is to be hoped that if any of these points have escaped the Committee's attention they will consider them and put them before the authorities.—C. G. G.

The Isaacson Engine.

Mr. R. J. Isaacson writes: "In the last issue of *THE AEROPLANE* you state that the Isaacson engine in the Flanders biplane came to grief, and that considerable damage was done to the internal economy of the engine. This reads as though something serious had happened, whereas as a matter of fact, the damage done was so small as to be almost negligible. The parts were sent to us to examine, and a mechanic, armed with nothing more formidable than a piece of emery cloth, proceeded to repair the 'considerable damage' in less than half an hour. The only actual breakage was a 3-16-inch pin about 2 inches in length, which could be replaced immediately. It is unfair to the engine to exaggerate the damage and give the impression of a serious breakdown, when no such thing occurred, and leads people to overlook the fact that the engine has been in constant use for the last five months without any attention whatever." [It is very good news to hear that the damage was so slight, and it speaks highly for the design and material of the engine, for as a rule any little thing casting loose inside a motor produces results like a shell bursting in a destroyer's engine room. The paragraph to which Mr. Isaacson appears to object was based on usually reliable authority, and was deliberately inserted in fairness to the engine in order to put a check on the gossips who are always only too willing to turn any breakage of an experimental part into evidence of the incompetence of British manufacturers.—Ed.]

Mrs. S. F. Cody's Illness.

Her many friends will regret to hear that Mrs. Cody is at present confined to her bed owing to a serious stroke, and that she has lost the use of her left side. Her doctor hopes that with careful nursing and by avoiding all worry Mrs. Cody will recover.

Wind Gusts and the Structure of Aerial Disturbances.

On January 7th a highly interesting paper was read by Dr. W. N. Shaw, LL.D., Sc.D., F.R.S., F.Ae.S., before the members of the Royal Meteorological Society and of the Aeronautical Society.

The lecturer said that aeronautics is the science of the future and its professors and preachers have the qualities of their science. When he was asked to read a paper that evening, he was told beforehand the subject he should select. It was a new departure, characteristic of these new times. Hitherto subjects had been selected, not by those who were to hear, but by those who were to speak. The principle of selection was that the teacher must be able to display superior knowledge and the process of education was a sort of wave of superior knowledge going down from the universities into the most elementary recesses without much regard for what it looks like from the point of view of those hungry for the knowledge of "how it goes," and still more "why it goes." They had given him the subject, "Wind Gusts and the Structure of Aerial Disturbances." He really did not know whether he could do justice to it, and was provoked to a further digression by another characteristic of futurity which might be called pre-maturity. In one of the announcements of the meeting in the papers he noticed that what he had to say about gusts and aerial disturbances had already been characterised by some suitable adjective—he forgot what it was. It was a little depressing to be told beforehand down to the last adjective what particular kind of boredom one was going to inflict on the audience that might in self-defence have stayed away, but he ought not to complain. He was a forecaster himself and the forecast of that evening's gloom gave him a fellow-feeling with the weather, if, when it thought, as he did then, that it was doing its best to be fine and bright and pleasant, it came across a forecast from his office which turned its pleasure into patient endurance by some such adjective as "still unsettled."

Gusts are fluctuations of wind force at short intervals; there is no precise period about them; there is every stage of gradation of them from what we have come to regard as the ordinary gustiness of an otherwise "steady" wind, with about seventeen fluctuations a minute, to the equally irregular "recurring squalls" themselves made up of groups of gusts at intervals of half an hour, more or less. These phenomena may be regarded as the turbulent motion of the atmosphere as distinguished from the stream line motion of the undisturbed atmospheric current, the turbulent motion which consists of circulation and which is illustrated by the eddy, the whirlpool, the whirlwind.

We know for certain from experiment, as well as from observation, that eddy motion is produced when a steady current of air moves along even a smooth solid, or liquid surface, and still more so when it passes an obstacle, so that the surface of the sea, or of flat land, or still more conspicuous obstacles in the shape of waves, cliffs, buildings, trees or woods, will cause eddy motion. Much time and trouble has been spent at the National Physical Laboratory at Teddington in securing a current in an air channel reasonably free from eddy motion, and it is this kind of eddy motion which is manifest in the gustiness of an ordinary wind. We may be pretty sure of that from the differences which we notice between the gustiness of different exposures as recorded by our anemometers. The gustiness is evidently dependent upon the direction from which the wind comes. The wind which advances over a gradual slope direct from the open sea is much less gusty than that which comes over land. The most extensive fluctuations in the wind are those which are shown on the anemometer at the top of the rock of Gibraltar when the wind blows on the east cliff, which is very abrupt, but in that case we have to deal with a special form of localised disturbance which we call the cliff eddy.

Permanent Eddies over Cliffs.

When the wind blows on the face of the cliff with sufficient velocity we get a permanent eddy which can be observed in a strong wind on any cliff, and which, in the case of Gibraltar, is bounded by a sheet of air going upwards at a steep angle sometimes for hundreds of feet. The peculiar characteristics of the anemometer trace in that case [The slide showed sudden

drops to zero at almost regular intervals.—Ed.] probably represent not so much fluctuations in the velocity of the wind itself as the fluctuations in the upward direction, to which the anemometer responds by the sudden transition from pressure to suction at the opening which is designed for pressure.

The case of eddy motion with which most people are familiar and which is most easily described is the vortex ring, which can easily be obtained by a current of air passing with suitable rapidity through a circular opening. In that case the eddy motion is quite persistent and the vortex ring travels with a velocity depending on its speed of rotation. [A vortex ring has been well described as air acting like a rubber ring rolling down an umbrella.—Ed.]

Experiments at the National Physical Laboratory have shown that a steady air current passing an obstacle throws off a succession of nearly complete vortices which are sufficiently persistent for their shape to be recognised, though subsequently they disintegrate rapidly. Out of the steady motion and the obstacle we get a sort of pulsating motion, which on the larger scale would be represented on an anemogram by a series of gusts. One step in the description of the turbulent motion, due to an obstacle, would therefore be to say how frequently these vortices are given off. He supposed that with an increasing current the eddies are formed and sent off more and more rapidly until we get a quasi-permanent but pulsating cliff eddy. [It strikes one as possible that the limiting factor in gusts may be the combined elasticity and viscosity of the air, so that a gust may be likened to the stretching and snapping of a rubber cord, each gust representing a snap of the air under tension.—Ed.]

The eddies due to a comparatively flat surface of land or water are still more difficult to describe. Mr. Mallock has pointed out that the eddy motions in steamer smoke are due to wind and water and not to the wind and steamer. The lecturer supposed that for a wind of given velocity and a given surface a certain amount of turbulence is introduced which could be estimated numerically, and that the amount of turbulence is related to the gustiness shown on an anemometer record. He hoped shortly to have information that would throw some light on the question whether the surface turbulence is reduced or enhanced by flexible boundary conditions such as a grove of trees. Dr. J. E. Crombie, of Dyce, near Aberdeen, has been good enough to install an anemometer with its vane projecting ten feet out of the top of a grove of trees on his estate, and he looked forward to a comparison of the records, for summer with leaves on, and winter without leaves.

There is, however, another question to which he asked attention, and that is whether material obstacles are necessary for the production of turbulent motion that may affect an airship or an aeroplane. To that the answer is obviously "no," and it leads to the consideration of the origin of turbulent motion in the atmosphere itself. In the tropical revolving storms we have examples of real vortices with vertical axes maintained sometimes for several days together. They are a hundred miles or so in diameter, they travel at a slow rate, about ten miles an hour, and they originate over the sea in circumstances which have little or nothing to do with surface friction. The difficulty about them is to understand how the low pressure at the core is maintained when all the processes which we see going on tend to reduce it. If that difficulty were disposed of the rest is easy; the conservation of angular momentum would account for the violence of the winds if the successive rings of the vortex are diminishing the diameter.

Besides these we have the tornadoes of the North American plains, which are perhaps a quarter of a mile wide and seem also to be rotatory. They last for a few hours, and there are besides the occasional dust "devil" or little whirlwinds, which are similar but less destructive.

There is a cause of local circulation in the atmosphere, in the sense of turbulent motion, in the convection (drawing together) of relatively warm and cold air. We seem to be able to trace cause and effect in this matter in the case of the line squall in which apparently there is a long line or cascade of descending air which pushes up the warmer air in front of it. In general character the phenomena are not, strictly speaking, vortex motion, because the air that descends, being cold, will

not rise again and complete its circle, but there might very well be a core of turbulent motion between the two currents. There is also generally some horizontal circulation, because the two currents are seldom parallel so that it is quite possible, and even likely, that the violent relative motion may give rise to line eddies which ultimately drop one end on the earth. Certain it is that the destruction of the Zeppelin off Heligoland, in October last, may be attributed to turbulent motion originating in the convective condition of the atmosphere itself.

We must regard every warm patch and every cold patch in the upper air not merely as floating along and doing nothing, but as making up the pressure distribution upon which the surface wind depends, and every disturbance of temperature by convection means a corresponding disturbance of the regularity or steadiness of the wind. When, therefore, one speaks of the structure of a disturbance for the purpose of aeronautical science, let it not be supposed that the actual wind-structure of the moment is the end of all things; the temperatures of the different parts of the structure are, at least, an important element in the matter of squalls and wind, and as a step towards the comprehension of the structure we must not overlook the temperature differences of different parts.

Dr. Shaw exhibited a number of quite interesting slides made from anemometer records of the familiar "fever chart" type, taken at such widely different places as Aberdeen, Pendennis Castle, Shoeburyness and Gibraltar. One of the Gibraltar slides was particularly interesting in that it showed beyond any doubt that a wind which was jumping between 30 and 60 m.p.h. every now and then fell to zero. This Dr. Shaw explained by the fact that at certain intervals a particularly strong gust would strike the face of the rock and shoot vertically past the nose of the tube of the anemometer, which, consequently having no pressure directly into it, indicated no wind, which, of course, shows that even the best of anemometers only give one a general idea of the wind, and nothing like absolute measure.

The discussion was opened by Major Brooke-Popham, O.C. No. 3 Squadron, Royal Flying Corps, who remarked that turbulent motion was noticeable in free air undisturbed by ground gusts. For example, one went up in a steady wind to 3,000 feet and there found uncomfortable eddies up to 3,500, and then steady wind again in a different direction, the eddies evidently being caused by friction between the two layers of wind. He

also wanted to know if anybody had satisfactorily explained why it was easier to climb head to wind than with a following wind.

Dr. Stanton made some interesting sketches of the effects of wind gusts on the smoke from large chimneys, and pointed out that in testing the pressure of wind on the girders of the Tower Bridge they found that gusts came comparatively regularly, and that when the speed of the wind jumped suddenly, perhaps 10 or 15 m.p.h., the period taken for the jump in speed was only the same as that between the minor regular gusts.

Colonel Rawson and Mr. Hankin both related experiences of wind gusts and eddies abroad. Mr. Hankin apparently habitually divided the state of the air into air soarable for cheeks, and air not soarable for those interesting birds. Unfortunately he omitted any reference to "Ergaër."

Lieut. Holt, R.F.C., inquired whether the lecturer could give any explanation of the difference between a "remou" and a gust. He also referred to the fact that one sometimes experienced disturbed air below cumulus clouds, and yet found it quite calm under similar clouds at other times. As a general rule one found steady wind at 2,000 feet, but in the summer ground eddies rose higher.

Major Brancker, R.A., of the Department of Military Aeronautics, said that he thought the sun was a greater enemy to aviators than wind. He had flown in India on several occasions, and though they chose perfect weather in which to start, they always found it bumpy at a thousand feet. He hoped that they would receive further information from the experiences of the Indian officers who would shortly be flying in that country. He also wanted to know whether the lecturer thought that artificial vortices could be produced of sufficient strength to disturb aeroplanes.

Major Brancker then suggested that aviators and meteorologists should assist one another with their observations and proposed that some definite attempt be made to exchange views and experiences which would have valuable results.

Dr. Shaw, in a brief reply, said that the approach of anything solid to a vortex ring would probably break it up.

Major-General Ruck, in proposing a vote of thanks to the lecturer, said that the Aeronautical Society would be very happy to co-operate with the Royal Meteorological Society in the way suggested by Major Brancker.

A Tour in a Repair Wagon.

The "Bristol" aeroplane repair wagon has again demonstrated its utility and reliability under unfavourable conditions of road and weather during the return journey by road from the Paris Aero Show to Le Tréport (30 miles from Dieppe) and from London to Bristol, as the following account by one of the men in charge clearly shows:—"We left the Grand Palais at 5.15 p.m. on Saturday (December 27th) and proceeded via the Champs Elysées to the main road to Saint-Germain-en-Laye. No difficulty whatever was experienced in driving the wagon through the streets, which at that time were crowded with motor-vehicles of every description. The road for some eight miles after leaving the Porte Maillot was in a very bad state of repair, being practically full of holes six and even eight inches deep and about a foot square; but, thanks to the excellent suspension, no undue vibration or shock was felt. The town of Saint-Germain-en-Laye (famous for the architecture of its castle and church) was soon reached, and here the wagon was garaged for the night, it being our intention to start away at daybreak the following morning and complete the journey to Le Tréport the same day. This, however, proved to be impossible, as at 6.30 a.m. on Sunday the muddy roads of the previous evening were carpeted with snow to a depth of three inches, the snow still falling. A start was however made at 6.45 a.m., but it was soon apparent that to proceed would have been decidedly dangerous, as it was impossible to distinguish the road from the ditch, and the attempt for that day was therefore abandoned. The weather did not improve during Sunday, and when the snow ceased falling at mid-day it commenced to freeze, and at 8 a.m. on Monday the snow was quite hard and showed no signs of clearing away.

"We again left Saint-Germain and proceeded through the magnificent St. Germain Forest, where the trees—thickly covered with snow—were a very impressive sight. We soon

arrived at the town of Pontoise, where we found that for a few miles the roads had been cleared by snow-ploughs, but this impeded rather than facilitated our progress, on account of the ploughs only clearing a narrow passage of about three feet, with the result that the wheels of the wagon were running through the banks of snow, nearly a foot deep, caused by the plough. Passing through the village of Méru, we were soon on the way to Beauvais, an historical town of considerable size and importance, and the journey then proceeded without incident through Marseilles-le-Petit to Grandvilliers. The road between Méru and Grandvilliers was exceptionally hilly, as was, in fact, the whole journey, but this particular section contained a hill fully two miles long in the form of a double 's,' on which the frozen snow did not provide the best surface for the wheels to grip. In several places we ran into snow-drifts nearly two feet deep, but the wagon steadily made its way through them.

"The night was spent at Grandvilliers, and on Tuesday morning we started from there at 8 a.m., arriving at Aumale at 9.15 a.m., where we picked up the River Bresle, which was followed through Gamaches and Eu until Le Tréport was reached. The wagon was put on board the boat for London on Wednesday, arriving in England on Saturday morning, and the road journey from London to Bristol was accomplished without incident."

The average speed of the motor-wagon on the French roads was 12 miles per hour, which was a very creditable performance, considering the state of the roads and the heavy running caused by the several snowstorms. The 35-h.p. motor worked splendidly throughout the run, and this travelling motor-workshop is an excellent testimonial to the quality of the construction at the Brislington shops of the Bristol Company. It should be noted that the engine, as well as the chassis and the rest of the wagon, was built in the Brislington shops

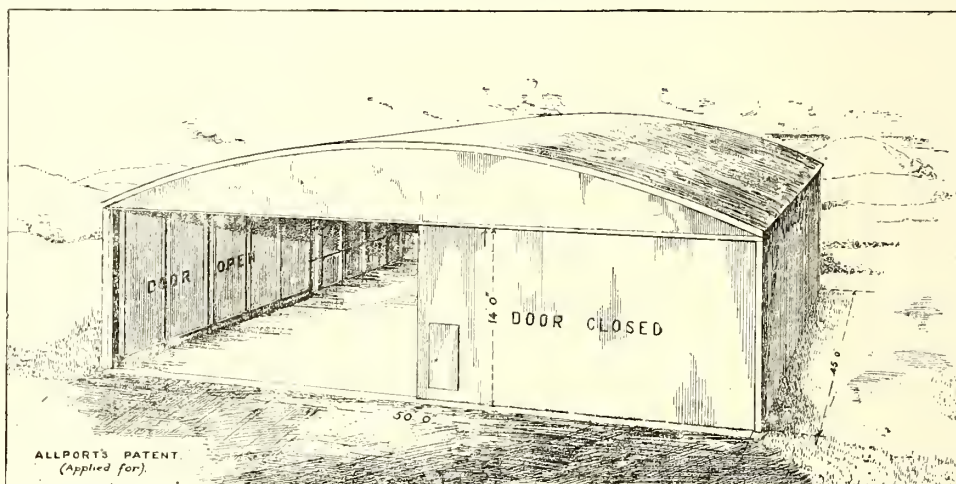
A Practicable Door for Aeroplane Sheds.

There is no real need to emphasise the inefficiency of all prevailing types of shed door: they do the necessary emphasising themselves; they jam and jam, their operators can do nothing but rhyme and rhyme. One may dismiss the played-out idea of the half-let-down and half-pull-up door, whose principle is dangerous even when it works; the top half must be held up by something in tension, either a rope or a wire—something, therefore, that is longing to snap and let the flap cave somebody's skull in. Also, in a breeze, a jealous flap may be tempted to forsake its servile vocation and aviate, to the disadvantage of all concerned. The roller-blind idea has been tried; it is very heavy, very expensive, and, especially where the span is wide, very apt to go wrong. The primitive shop-shutter idea is all very well in a country where there is slave labour and where time is no object. The vast majority of doors, to-day, slide or roll laterally, bungle round a corner somehow and stick tight, either before, after, or during. In some cases, a hinged end-panel puts unfair strains on a corner post, flaps itself in the wind, breaks first its bolts, then its hinges.

The reason for this jamming is twofold; firstly, where the sliding panels are narrow and separate the wheel-base is too small for the door height; a slight push on the lower part where the push must come till men grow ten feet high, tends to unseat one of the running wheels and to dig its diagonally opposite corner into the ground. Secondly, whether the panels are separate or hinged together, they are commonly slung from the top beam, forming a very heavy load which sooner or later must make the beam sag unless it be of unreasonable strength.

Examining these phenomena, Mr. Allport, of the Wire-wave Roofing Company, said to himself:—"Since one has the whole round world to bear the weight of these doors why sling them from a beam?" It is a curious commentary on the mental conservatism of shed-door builders that nobody had thought of it before. The first objector says: "But doors of this height are too thin, they won't stand up, they will buckle." They will not buckle if they are made stiff enough, and it is easier and cheaper to make them stiff enough to stand alone than it is to make a top beam stiff enough not to sag. Mr. Allport's panels are of corrugated iron with stiffening uprights of wood, two to each panel. The essence of the device is the floor gear; here we have a single, low, convex-topped rail running across the opening, curving round at each corner and then running parallel with the walls, much as the mud-collecting groove-rail does in the usual hangar. This rail is interrupted in four places, two at each corner, for a purpose which will appear later. Along the rail runs a little mono-rail train of a nature as unique as it is ingenious. Imagine a bar-chain; its five-foot bars are linked end to end, tongue-and-groove-wise by a pin. The latter, being vertical, allows the bars to swing relatively in a horizontal plane. Each of these connecting pins is extended on the under side and bears on its lower end a grooved wheel, with ball bearings, which runs easily along the rail. In practice the bars are of channel-iron for stiffness and lightness, and each forms the bottom of one panel of the door. Here then is our train; clearly, such a train, if held upright, will follow the rail round the reasonable corner curve without difficulty. A similar system is constructed on the top side, with these differences: a channel formed by two parallel angle irons takes the place of the rail, the channel faces downwards, it is continuous and not interrupted at the corners. The connecting pins of the upper chain are extended upwards and each carries a small horizontal wheel which bears upon one side or

other of the channel in which it runs. These two running chains, upper and lower, are connected, bar to bar, each by a pair of wooden scantlings; thus we have a single train of tall oblong frames. There is no diagonal bracing, for the corrugated iron sheets which cover the completed frames give all the necessary stiffness in that direction, the wooden members, as mentioned before, provide against any tendency the sheeting might have to bend under its own weight. The top channel-bar adds no more than its own weight to the beam, its sole duty being to keep the doors upright and to help guide them on their travels. Advantage is taken of the corrugations in the sheet iron, whose "wave length" is rather greater than usual, by making the end corrugations of the adjoining panels



overlap. Thus when the doors are closed there is no crack whatever in the entire front, while even as the panels move round the corner the overlapping edges do not separate, but "articulate," the axis of the hinge-pin coinciding with the centre of the end corrugation.

The final detail has to do with the four end panels of the two trains.

Consider the doors completely shut. The extreme panels are now in line with the rest; in other words, the extreme rail-wheels are not on the main line, but are right in the respective corners, likewise the extreme roller-pins are out of the top channel-rail. These roller-pins are now, as a matter of fact, acting as bolts, being pushed up into a couple of holes in the ends of the top beam. The first action in opening the doors is to pull these pins down, a long downward handle extension of the pin being provided for that purpose. The top corner of the end panel is now free. The next action is to pull it back into the shed, the supporting wheel, which can swivel, running along a little curved switch rail which leads to one of the interruptions on the curve of the main rail. Here the wheel swivels automatically into the correct position for travelling on the main rail. The top pin is now pushed up again and enters the channel of the top rail, and the whole door train may now be pushed round the corner. When the train comes to rest, the centre panel is only part of the way round the curve; by a reversal of the process described above, this panel is freed from rail and channel and swung back along another switch rail flat against the hangar wall. When closed the top end bolt-pins in their holes lock the doors most effectually, but floor bolts are provided as well, and a little door is formed in one of the centre panels to give access to the shed.

The whole device, for which protection has been granted upon several patent applications, is a very workmanlike and ingenious conception, though very simple, as great inventions always are. It has still to pass the test of time, but its designers and makers show their confidence in it by offering to keep any doors they may erect in good running order for a nominal yearly fee, while if the shed itself has been constructed by them, they will keep the doors in order free of charge. As for workmanship, the reputation of the Wire-Wave Roofing Company should be a sufficient guarantee.—W. A. B.

Flying at Hendon.

On Saturday afternoon it rained from time to time, but not enough to interfere with the flying, or, apparently, with the ever-increasing desire of Londoners to see aeroplanes in the air. The cross-country race (to Bittacy Hill and back four times, i.e., 16 miles), attracted six entrants, and resulted as follows:—

1, M. Verrier (M. Farman, 70 Renault), 3 mins. 34 secs. start, won in 25 mins. 43 secs.; 2, M. Marty (Morane-Saulnier, 50 Le Rhone), scratch, finished in 26 mins. 18 secs.; 3, Mr. Strange (G.-W. biplane, 50 Gnome), 10 mins. 28 secs., finished in 26 mins. 28 secs.; 4, Mr. Goodden (Caudron, 60 Anzani), 5 mins. 44 secs., finished in 26 mins. 46 secs.; 5, Mr. Manton (G.-W. biplane, 50 Gnome), 7 mins. 38 secs., finished in 26 mins. 58 secs.; 6, Mr. Carr (M. Farman, 70 Renault), 5 mins. 44 secs., finished in 27 mins. 22 secs.

M. Verrier's victory was easy, so much so that he was tempted to amuse himself with "aerobatics" between pylon No. 6 and the finishing line. In the circumstances it would have been exceedingly funny if M. Marty—whose Morane was eating up the intervening distance with great rapidity—had overtaken him on the line, but M. Verrier is a wary bird and saw to it that his antics, for all their apparent bravado, did not occupy too great a time. Mr. Carr, in the machine usually flown by M. Noel, spoiled his chance by getting a long way off his course in the second lap.

Mr. Temple gave a very superior display on his Blériot during the race, flying on one occasion low across the finishing line in a way that might have caused confusion to the timekeepers had there been a Blériot competing in the race, but for the most part he kept high, above the clouds in fact. Mr. Hall was out for several flights on his Caudron.

Mr. Hamel caused a good deal of enthusiasm among the spectators by two superb flights during which he indulged in what is perhaps the prettiest of all these neo-impressionist aerophantasies. It is a development of the famous "fling," with which M. Chevillard used to cause consternation at Hendon in the early part of last year (and which he himself has now developed to the limit—if reports be true). Mr. Hamel turns the machine completely over sideways, and then rights it by describing the second half of a loop. On one occasion he did this three times in rapid succession. The effect of this series of extraordinary contortions is indescribable; they baffle the eye so completely that, after the first evolution and a half it is often impossible to tell exactly what the machine is doing. The complication is increased by the number of variations possible on this theme; the initial turn-over may be sudden or slow, it may also be complete or incomplete, while the "recovery" may be complicated before its completion by an unforeseen bank, or by the beginning of another turn-over. The only thing for a spectator to do is to watch and pray.

As a contrast to the warm, humid air of Saturday, the weather on Sunday was bitterly cold, and the anemometer needle was hard at work recording a choppy, north-east wind. The attendance was small but select, among the distinguished visitors being the Countess of Drogheda, Lady Eileen Vivian, and Lady Eileen Knox, all of whom went for flights with Mr. Grahame-White on his Maurice Farman.

Messrs. Manton and Strange made extended flights on 50 h.p. "box-kites," and they seemed to have fairly hard work, though perhaps that was a luxury on such a cold day. M. Marty started off with a passenger on the 80 Le Rhone Morane, and as the engine started mis-firing badly before he had fairly got his tail up, he had rather an exciting time for a few seconds. Later he went up on the single-seater, and put in some very fine work.

Mr. Hamel perpetrated many loops and "super-chutes," and thoroughly enjoyed himself. M. Verrier was in terrific form, and went through a regular aerial fantasia, during which he executed double switchbacks with the engine stopped, and upward jerks which showed one the plan view of the machine from behind; a superb performance from which complete confidence in M. Verrier's skill hardly served to eliminate a feeling of horror, and he really does perform too close to the ground.

A post-card from M. Noel in Paris tells us that he is hugely enjoying the first holiday he has had for five years.

A Canton-Unné Test.

A very fine test run has recently been carried through by a 200-h.p. Canton-Unné engine before being delivered to Sir J. Samuel White and Co., Ltd., the makers of the Wight Sea-planes. This engine gave between 202 and 208 h.p. throughout a 4-hour run, at 1,250 to 1,280 r.p.m. During the time the petrol consumption was only fifteen gallons per hour, and the oil consumption was only 1½ gallons per hour, an astonishingly low figure. The engine was then taken to pieces, examined, put together again, and immediately did a run of another hour at the same power. A similar engine recently did a non-stop full-power run of 100 hours without showing appreciable wear. It would seem that the Canton-Unné may now definitely take its place among the world's best engines.

A Gnome-timing Stop-watch.

The Hasler Telegraph Works of 26, Victoria Street, Westminster, has brought out a very ingenious stop-watch by means of which the revolution speed of the 7 and 14-cylinder Gnome engines may be read. Another model is marketed for the 9-cylinder engine. On the dial, outside the clock-face, are graduations reading from 1,500 down to 600; all that is necessary is to set the hand going, count the pump pulsations in the gauge-glass up to 42 and stop the hand, which will then be indicating the correct revolution-speed. In the case of the 9-cylinder model, 54 pulsations are counted.

Curtiss Boats in England.

On Wednesday last the Curtiss boat which has recently been thoroughly overhauled by Hamble River, Luke & Co., Ltd., at Hamble, was flown from there to Brighton and back to Littlehampton by Lieut. John Porte, R.N., and Capt. Ernest Bass. She has now been packed up for transport to the Riviera, where Capt. Bass will fly her for some time. One gathers that arrangements are just upon completed by which the Curtiss boats will be handled commercially in this country by a powerful syndicate, and with the high reputation the boats and engines hold all over the world, there should be prospects of excellent business, especially as the new 200 h.p. Curtiss engine is now ready for the market and is said to excel even the 100 h.p. in efficiency. The bigger engine will, of course, drive a bigger boat and so will have advantages for sea work.

Capt Bass was recently sentenced to a month's imprisonment for assaulting the driver of a grocer's cart who obstructed the progress of his car. He naturally appealed, and at the West Sussex Quarter Sessions the sentence was reduced to a fine of £5, and Capt. Bass, who is always generous, if a trifle impulsive, agreed to compensate the assaultee, expressing "deep and unfeigned regret" at the occurrence.

The Week's Work.

Weather Reports for Week Ending January 11th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Shoreham...	Wind	Fair	Calm	Wind Wet	Strong Wind	Strong Wind	Strong Wind
Brooklands ...	Very Windy	Tu'tion Imposs.	Good	Windy	Tu'tion Imposs.	Rain	Cold Wind
Salisbury Plain	Windy	Fair	Good	Tu'tion Imposs.	Wind Rain	Windy	Wind Cold
Eastchurch ..	Wind Rain	High Wind	Calm Dry	Windy Dry	Wind Rain	Calm Rain	Wind Fine
Hendon	Wind Rain	Wind Rain	Fine	Windy	Windy	Wind Rain	N.E. Wind Frost
Montrose	Snow Storm	Snow Wind	Dull Snow	Gale	Rain	Rain Wind	—

School Reports.

Hendon.—AT GRAHAME-WHITE SCHOOL.—Instructors during week: Messrs. M. D. Manton and L. A. Strange. Pupils with instructor on machine: Messrs. Piercy, Parker, Cowley, Bjorkland, Moore, Strange, North. Straights or rolling alone, Messrs. Cripps and Bjorkland. 8's or circs. alone, Messrs. Norris, Carr, Parker, Cripps, Lillywhite. Machines in use: Grahame-White biplanes (50 Gnome), and Blériot.

At Ewen School.—Instructors during week: Messrs. Baumann, Goodden, and Zubiaga. Pupils: Straights or rolling alone, Lt Kinnear. 8's or circs. alone, Messrs. Cooper, Murray, McGregor. Machines in use: Tractor biplanes, 2; Caudrons, 35 Anzani (45 and 60 Anzani). Messrs. Baumann and Goodden, exhibition work on 60 and 45 h.p. Caudrons.

HALL FLYING SCHOOL.—Instructor during week, Mr. Denys Ware. Machines in use: 1 Avro, 2 Caudron. Hall mono (Anzani engine). New double-surfaced Caudron nearing completion. Wed., Mr. Hall flying $\frac{3}{4}$ hr at high altitudes on No. 1 Caudron, spiral glide with propeller stopped from 1,000 feet. Sat.: In early morning, Mr. Denys-Ware went out with Messrs. Brookes and Burn, but on testing air found conditions unsafe for practice. Mr. J. L. Hall exhibits in afternoon, but oil not working properly, engine did not pull well.

Brooklands.—At BRISTOL SCHOOL: Instructors during week: Messrs. Merriam and Halford. Pupils with instructor on machine: Lt Pigott (2 flights) 20 mins; Lt Cull (3) 25 mins; Lt Watkins (3) 30 mins; Lt Palmer (1); 10 mins; Lt Binney (new pupil) (4) 35 mins; A.M. Locker (2) 17 mins; Mr. Racine Jacques (1) 10 mins. Straights or rolling alone: Lt Pigott (3) 25 mins; Lt Watkins (2) 20 mins; Lt Cull (1) 10 mins. 8's or circles alone: Lt Pigott (5) 45 mins; Lt Watkins (5) 40 mins; Lt Cull (3) 25 mins. On Wednesday, Lt Watkins took first half of brevet, flying exceedingly well and landing perfectly. Machines in use: Three Bristol school biplanes.

At VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight and Elsdon. Pupils with instructor on machine: Messrs. Crosbie (8 flights), Creagh (3), Dawson (2), Monckton (5). Straights or rolling alone: Messrs. Creagh (2) (biplane). 8's or circles alone: Messrs. Creagh (2) (biplane), Webb (2) (mono). Machines in use: 3 propeller biplanes, 1 mono. Mr. Barnwell testing Blériot monoplane and gun-carrying biplane during week.

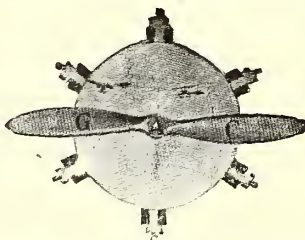
Shoreham Flying School.—Instructor during week: Mr. William H. Elliott. Pupils doing straights or rolling alone: Mr. Purnell, Lieut. Clemson, R.N.R., Mid Thompson, R.N., Mr. Hayland-Wilson. 8's or circles alone: Mr. R. P. Cannon. Machines in use: Avro biplanes (45 and 35-h.p. Greens).

Eastchurch.—On Monday, 5th, Mr. Gordon Bell was testing a new Short tractor (100-h.p. 9-cylinder Gnome). In the afternoon Mr. Bell took up Mr. C. R. Fairey and Mr. Maurice Wright together, the machine lifted and flew as well as with the pilot only. In the afternoon Mr. Bell went up and gave a good show of fancy flying. On Tuesday, 6th, he had the machine out again testing propeller and taking Mr. Fairey as passenger. Again on Wednesday Mr. Bell on the same machine as before took up Mr. Fairey and Mr. M. Wright for a prolonged flight. On Thursday he was again up with Mr. Fairey in an absolute gale. In the afternoon Mr. Bell took the same machine to the Naval Station at the Isle of Grain where he made a safe landing; Mr. Fairey accompanied him as before.

Salisbury Plain (Bristol School): Instructors during week: Messrs. Jullerot, Busted, Sippe, and Voigt. Pupils with instructor on machine: Mr. Stutt (8 flights) 65 mins; Mr. Voigt on tractor and side-by-side mono (5) 60 mins; Capt Fell (1) 10 mins; Lt Finch (1) 10 mins. Straights or Rolling alone: Mr. Gilligan (3) 25 mins; Mr. Stutt (2) 20 mins. 8's or circles alone: Mr. Stutt (3) 30 mins; Mr. Gilligan (3) 25 mins. Machines in use: Three school biplanes; one 80-h.p. tractor biplane; one side-by-side mono. On Monday, Mr. Busted on 8-h.p. tractor biplane with staggered planes, flew from Bristol to Salisbury, the trip taking only 26 minutes, i.e., a speed of nearly 90 m.p.h. Good trip, although very cold.

EVERYTHING FOR AVIATION & AVIATOR. "THE LATEST & THE BEST."

Booking
Office for
Passenger



and
Exhibition
Flights.

GENERAL AVIATION CONTRACTORS, Ltd.,
Phone: 280 Gerrard. 30, Regent St., Piccadilly, S.W.
Wire: Santochimo, London
Cables: Aeros, Milan.
and at Milan.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/- rd. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

PATENTS.—How to Patent Invention. Particulars, with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only $6\frac{1}{2}$ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

W. H. EWEN SCHOOL OF FLYING, W. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work. £50. Passenger flights from £2 2s.

HALL SCHOOL OF FLYING.

Three types, BLÉRIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION CO., London Aerodrome, N.W.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIÈRE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD., 307, Euston Road, London, N.W.** Telephone: 912 North. Telegrams: "Aviprop," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London.** Tel. 834 Bank.

FOR SALE.—Parts and fittings of 50 Blériot wings, uncovered, unused, good order. £15.—Apply, **BROWN, Edgeley Villa, Collindale Avenue, Hendon.**

ENGINES

WANTED, 50-h.p. Gnome in first-class condition.—Send full particulars and price to **THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.**

EMPLOYMENT.

YOUTH, 21, desires employment with aeroplane company, preferably at Hendon. Very keen. Understands flight principles; has studied aviation generally since its commencement. Good references.—**A. CURTIS, Brightside, Golders Green Road, N.W.**

TINSMITH and Sheet Metal Worker, 28 years' experience, "expert," competent organiser, qualified to control men, systematic, and disciplinarian, seeks Responsible Position with a firm who would appreciate ability; highest credentials.—Box 527, **THE AEROPLANE, 166, Piccadilly, London, W.**

ENGINEER, mechanical, 19 years' experience, motorist, desires aero experience, any capacity, London; can do anything in wood or metal, time given.—Box 529, c/o **THE AEROPLANE, 166, Piccadilly, W.**

WANTED, excellent all-round aeroplane mechanic, used to wood and metal work, wiring and splicing. Experience with stationary engines preferred.—Apply Box 526, c/o **THE AEROPLANE, 166, Piccadilly, W.**

WELDER and Metal-Clip Worker wanted.—Apply **HANDLEY PAGE, 110, Cricklewood Lane.**

WELDER.—**SIR W. G. ARMSTRONG, WHITWORTH, AND CO., LTD.,** Aviation Department, Gosforth, Newcastle, wants, at once, experienced welder for B.E. parts.

EMPLOYMENT.—First-class Aeroplane Erectors wanted at once; regular engagement after month trial.—Write **SIR W. G. ARMSTRONG, WHITWORTH AND CO., LTD.,** Aviation Department, Gosforth, Newcastle.

UPSIDE-DOWN FLYING.

GEORGE LEE TEMPLE is open to give exhibitions of upside-down flying at home or abroad.—**TEMPLE, Hendon Aerodrome.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road.** Phone 4770 Wall.

COUNTY BOROUGH OF SOUTHPORT.—**HANGAR.**—The Corporation of Southport invite applications for the tenancy of a Hangar, with accommodation for one Aeroplane, situate at the north-west corner of the Municipal Golf Links, with an excellent approach to the sands. Applications, stating rent and period of tenancy, should be sent to the undersigned on or before the 30th day of January, 1914.—**J. ERNEST JARRATT, Town Clerk. Town Hall, Southport, 8th January, 1914.**

MODELS.

DING QUALITY MONOPLANES are stocked in London by Gamages, Holborn; Hamleys, Regent Street; Selfridges, Oxford Street. They are well worth inspection.—**THE W. R. DING COMPANY, 24, Villa Road, Handsworth, Birmingham.**

M.S.C. **DURATION MODEL,** size 31 in. by 24 in., 5s. Lots of finished parts, with drawings for constructing the above model, 2s. 6d. We stock everything for models.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

T. W. CLARKE AND CO.,
HAMPTON WICK, MIDDLESEX.

'Phone—Kingston 869. Est. 1906.

THE Pioneer Aeroplane Accessory Manufacturers wish you the Compliments of the Season, and offer to you an accurately marked steel rule, gratis, with every order to the value of 5s. Send along your orders, and you will be delighted. Send stamp for lists. Be in time!

S. J. KEMP & Co.,
CROWN WORKS, Kingston-on-Thames.
(Many Years Head-Model-maker to Messrs. T. W. K. Clarke & Co.)
Every Requisite for Model Aeroplanes. Send 1d. for List.
Models of Every Description built promptly.
Phone 321 Kingston. Telegrams "Garage, Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

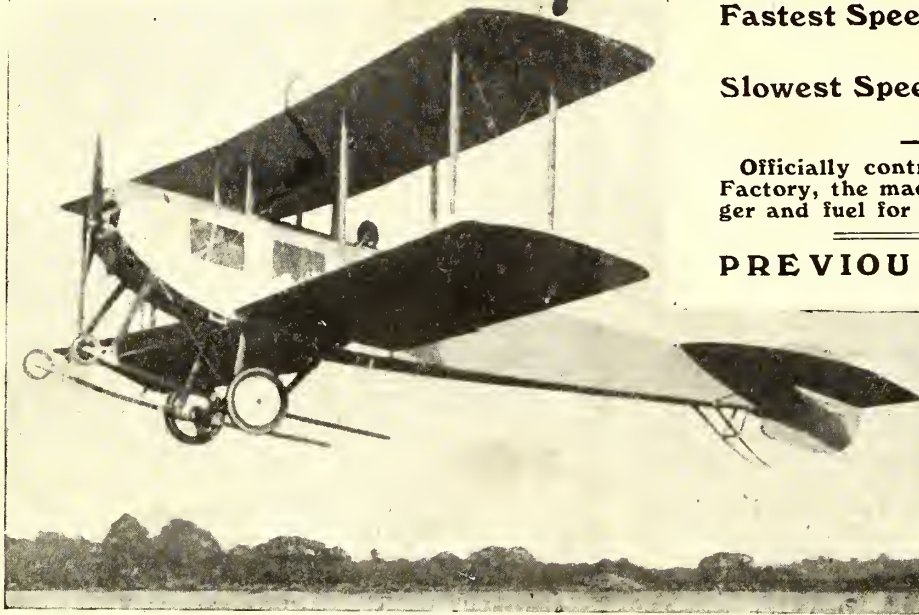
Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.
LIQUID SCOTCH GLUE
Ready for use at once.
USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.
Write for Price List and Particulars—
MENDINE CO., 8, Arthur Street, London Bridge, E.C.

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnome) beat all WORLD'S RECORDS FOR EFFICIENCY.



Fastest Speed 92 miles
(154 kms.) per hour.

Slowest Speed 36.9 miles
(61 kms.) per hour.

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

PREVIOUS RECORDS on the preceding type of SOPWITH BIPLANE (80 h.p. Gnome).

British Height Record (Pilot alone) 11,450 ft.

British Height Record (Pilot and 1 Passenger) 12,900 ft.

British Height Record (Pilot and 2 Passengers) 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's Admiralty and War Office.)

Telephone: 1777 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

Telegrams: "SOPWITH, KINGSTON."

FLYING AT HENDON

SATURDAY NEXT, January 17th, 1914, THIRD WINTER MEETING

12 MILES SPEED CONTEST (2 Heats and a Final.)

COMING EVENTS.

Sat. Jan. 24th. SECOND JANUARY MEETING.
Sat. Jan. 31st. SECOND METROPOLITAN MEETING.
Sat. Feb. 7th. FEBRUARY MEETING.

A SUGGESTION

The Directors of the Aerodrome would be glad if visitors who are interested in aviation could arrange to display small notices in their offices and business premises, giving particulars of Flying Races and Exhibitions at the London Aerodrome, Hendon. The Directors would much appreciate their co-operation, and would be glad to send Fixture Notices, on receipt of a note to the London Office, 166, Piccadilly, W.

AVIATION LECTURES

The Grahame-White Aviation Co. Ltd. have prepared a number of slides of aeroplane subjects, and will be pleased to loan these free of charge for the purpose of illustrating lectures on Aviation during the Winter months. Applications should be addressed to "Lecture," London Aerodrome Offices, 166, Piccadilly, W.

WINTER SEASON — RACES EVERY SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

Admission, 6d., 1s., 2s. 6d. (Children Half-price). Motors (including chauffeur), 2s. 6d.

THE LONDON AERODROME, HENDON, N.W.

Proprietors: The Grahame-White Aviation Co., Ltd.

HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."

LONDON: 166, Piccadilly, W. Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."

"THE AEROPLANE," JANUARY 22, 1914.

THE AEROPLANE

Edited by CHAS. G. GREY. ("Aero-Amateur")

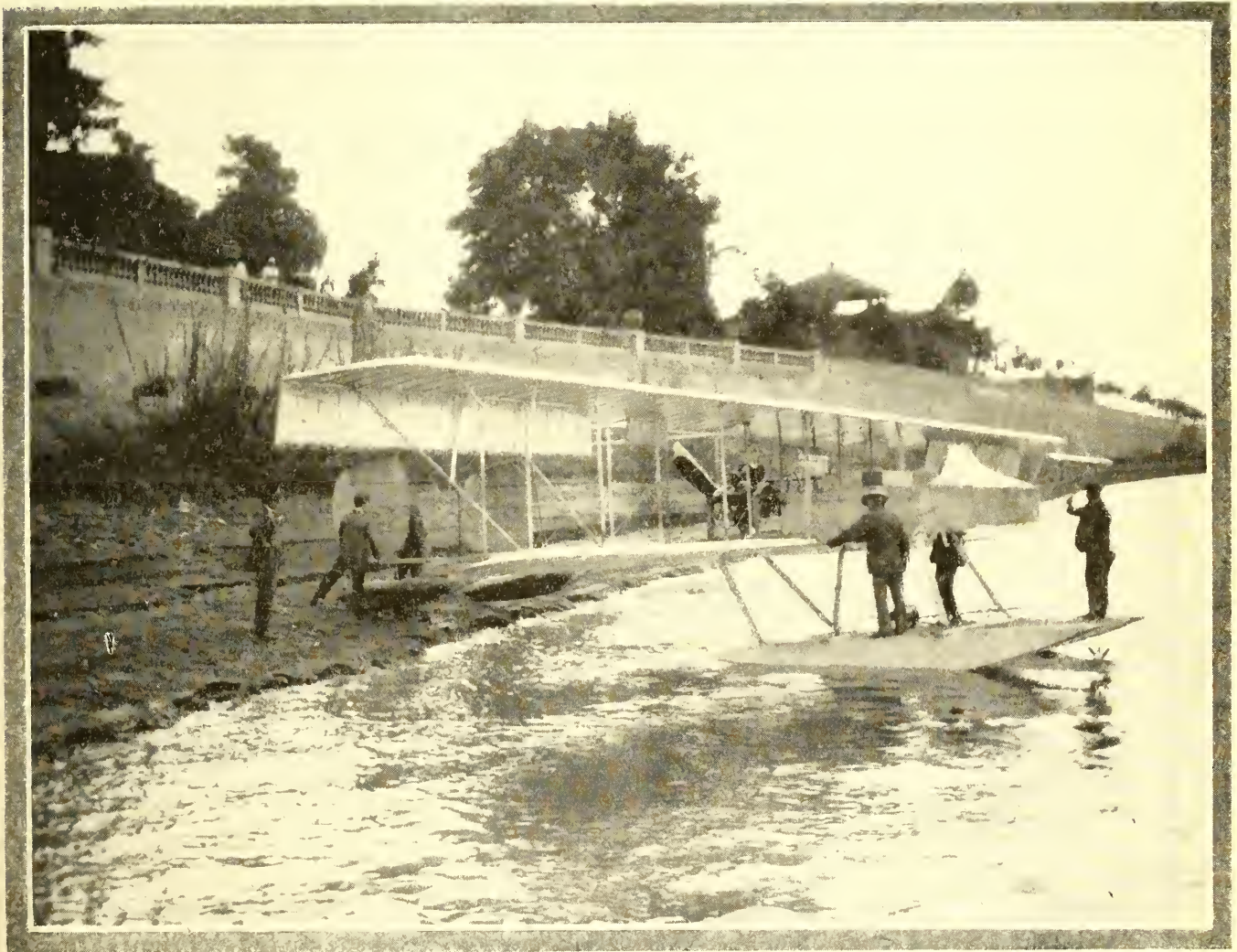


VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, JANUARY 22, 1914.

No. 4

THE NEW BIRD OF ISIS.



Mr. Frank McClean's Short waterplane on the Nile near Cairo. Mr. Horace Short, the builder of the machine, is standing on the nearer float, and Mr. J. Herbert Spottiswoode is on the left of the picture.

CONTRACTORS TO THE ADMIRALTY.

**SHORT BROTHERS,
AEROPLANE WORKS
AND
FLYING GROUNDS—
EASTCHURCH, ISLE OF SHEPPEY.**

Telephone :— 9 MINSTER-ON-SEA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

The "Bristol" *Flying Schools*

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Roils House, Brems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

An Answer to Anti-Stability Advocates.

It appears that various people who know quite a good deal about aeroplane design, and formulæ, and slide-rules, and such adjuncts to our latter-day civilisation, are not entirely in agreement with certain opinions expressed recently in these pages on the subject of inherently stable aeroplanes. Well, *chacun à son gout, quot homines tot sententias*, and so forth. They, being experts, have their opinions; I, being one of the lookers-on who see most of the game, have mine. *Qui vivra verra*, and he laughs best who laughs last. I would merely point out that the trade has to make what the public want, and not what the experts would like to make.

It seems likely that if the late Mr. Blondin had been a borough surveyor he would have found good arguments for substituting tight-ropes over the house-tops for the more familiar footpath or sidewalk, because he himself felt equally safe and comfortable on either—and certainly such a change would accelerate vehicular traffic in the streets. On about equally sound grounds expert designers object to inherently stable aeroplanes, and when the designers happen to be pilots as well they are even more prejudiced against stability. It seems worth while to give a few extracts from letters I have received on the subject during the last few days.

Other People's Views.

The first of my correspondents happens to be rather a good flier as well as a slide-rule expert. Says he: "My conviction is that you will never make a small machine inherently stable, though I see a way to make a huge machine so." I will not argue this point, but, granting its truth, why not make huge machines? The bigger the ship the less it rolls, because the waves are smaller in proportion to it; so why not make aeroplanes bigger? Still, the little 35-h.p. Caudron, about the smallest real flying machine in the world, seems to approach within bowing distance of inherent stability, and no one would call the Dunne or the Handley Page a particularly huge machine.

My correspondent continues: "Your comparison to a boat is very nice, but does not work, as a boat rests on its element and an aeroplane in its element." Another correspondent writes in much the same strain: "A boat rocks about and is stable, otherwise it stops still. An aeroplane starts to dive if the stability is wrong, in order to try and regain stability. An aeroplane, to my mind, cannot be inherently stable by just rocking. It may have to dive. Now this is undesirable, especially when about to land, and is actually the usual danger."

Now, as to the first argument. There certainly does appear to be something in the difference between a machine on an element and in it, but that has nothing to do with the case. I take it that every floating body depends for stability on the action and reaction of the forces acting upon it. Presumably, when those forces operate on a body lighter than the element on which (as a boat) or in which (as a dirigible or sub-

marine) it performs, they can act when it is not moving, or, rather, when it is only moving as regards its attitude and not bodily up or down, or backwards, or forwards, or to either side. When the body is heavier than the element, the righting forces are only produced when it is changing its position, as when a parachute is descending or when an aeroplane is gliding.

Perhaps some scientist will correct me if I am wrong, but I take it that, whether a vehicle in or on any element remains right side up or not, and whether it returns to its normal position if diverted therefrom, depends on what the force of gravity does with the centre of gravity of the vehicle in relation to its centre of flotation, or centre of pressure, or whatever you like to call it; and in an aeroplane I fancy the problem is to find out exactly whereabouts it keeps that particular point which in ships is known as the meta-centre—please ask the nearest naval architect to explain what that is—and that if one can find whatever does duty for a meta-centre, and if one can discover just what happens to the centres of pressure of every surface, such as wings, control planes, body-covering, and so forth, on an aeroplane, one can make a machine which will always keep right side up in the air.

As I have said, forward motion is necessary to give the various centres of pressure power to work, consequently an aeroplane is balanced so that the force of gravity compels it to dive if left to itself; but the machine can be so designed that the dive is nothing more than a glide after a certain necessary speed has been reached, and I know that in the Dunne, for example, the machine if left alone will land at its own gliding angle, so that, unless it hits some obstruction above the level of the ground, it is not likely to come to much harm.

The Act of Landing.

This rather takes the edge off the remark of another correspondent, who says: "I suggest that we shall not get a fool-proof machine until we have one which will choose its own landing-place, and land of its own accord. If you think that it is desirable to have an automatically stable machine just for high flying, I don't see the point in having gadgets and weird-shaped wings, since it is now possible to design a machine which is quite automatically stable under these conditions, or nearly so. If you must have a fool-proof machine you would have to teach the fool to land properly, always rather difficult on a machine which thinks for itself, as you never can tell what it wants, and is going, to do."

From the above it appears that my friend does not distinguish between practical inherent stability and absolute inherent stability. I was careful to point out in the recent article on the subject that the machine must be under full personal control when landing, but must be able to fly itself when once off the ground. Presumably, he has never seen the first Handley Page monoplane (admittedly an imperfect experiment) try

to side-slip on a turn. Instead of the regulation slip and nose-dive which has killed so many fliers, it used to do a slight dip and then shift suddenly forward and sideways with a peculiar movement which had a suggestion of skating about it. In the second of these machines the action was much the same. It was my ill-fortune to see it flying until a second or two before Lieut. Parke and Mr. Hardwick were killed in it, and in the turn which resulted in their coming round tail to wind the machine got round practically on a level keel, though, owing to a failing engine, its tail was hanging down in a position which would have made a side-slip certain on any ordinary type. It lost altitude on the turn, but it lost it in a flat drop. The accident itself happened because the machine was flying down wind close over some tall trees, and simply fell into a down current, for which one could no more blame its inherent stability than one could blame a lifeboat if the last wave dropped it hard on a beach, or the stability of a motor-car if the driver forgot to use his brakes on a hill or took a sharp corner too fast.

Be it noted that these machines made no pretence to fore and aft stability, but they were wonderfully good laterally. More advanced machines, such as the Dunne and the D.F.W., and various German aeroplanes, are stable fore and aft to the extent that if the pilot pushes the nose of the machine too steeply upward the machine simply slows down, and then, as the speed diminishes, the nose drops and it plunges forward again. On the other hand, if the pilot dives too steeply, the increasing pressure lifts the nose and the machine glides forward very fast till the pressure falls and another dive starts. The same thing happens when the machine is pitching about in the wind with the controls locked; every upward or downward pitch corrects itself.

Now, if we can give the ordinary man an aeroplane which he knows can be left to itself to pitch about at 150 or 200 feet from the ground without danger of that fatal side-slip and dive to which ordinary machines are subject, we shall have made progress. I shall be glad if any of my correspondents will tell me what would happen to any of their machines which are "sufficiently near being automatically stable" if the pilot left his seat with the controls locked and walked eight or ten feet back along the fuselage to tinker with the engine, as Commander Félix has on the Dunne. I know plenty of machines in which you can take your hands off the controls for a few seconds, just as you can let go the wheel of a car, especially if you steady the lever with your knees, but they are not really stable, in that you cannot leave them to fly with locked controls.

Another Quotation.

The correspondent first quoted says further: "Making the machines easier to fly is, of course, one of the best advances, but you know very well that all accidents happen near the ground, in landing or in getting off, through the sole reason that the machines are at that moment not controllable enough. But inherent stability makes machines still more uncontrollable, *e.g.*, negative wing-tips. Do you know that any given amount of negative surface can only be made harmless (via efficiency) by three times the amount of surface on the wings? Well-balanced machines are easy to fly even in a wind, and with small alterations in the control arrangements either legs or arms can be left free. Don't you think that our first effort should be towards slow landing, and leave inherent stability for later? A bicycle is not inherently stable, and it is still very popular. Nobody ever thinks of making it inherently stable."

Taking his arguments backwards, I can assure him that a tricycle is much nicer to ride than a bicycle on

good roads, but it is rather more trouble to push. This, and the greater room needed for storage, accounts for its lack of popularity. In a power-driven vehicle one prefers to expend some power in order to obtain stability. Hence the car is more popular than the motor-bicycle among those who can afford a car. Slow landing is undoubtedly a great advantage, but fewer pilots have been killed in fast landings than in the side-slip and nose-dive which inherent stability prevents. Anyhow, we already have machines which land fairly slowly—for example, the Avros and Sopwiths, and the latest Bristols, as well as the "B.E.s," if the last named are handled by clever pilots—so it would seem that we had better set about this stability question forthwith.

As to three units of lifting surface being needed to counteract one unit of negative surface, I will not dispute the statement, but I doubt it, for some of the inherently stable machines lift surprisingly well, and, after all, the real value of this statement depends on the proportion of negative surface needed to give stability. For example, if ten square feet of negative surface were enough to stabilise a machine with three hundred square feet of lifting surface, it would not be very terrible if one had to increase it to three hundred and forty square feet, so as to get the three hundred of lift, plus thirty to counteract the negative surface, plus the ten of negative surface; and I fancy that where the negative surface is itself movable, as in the Etrich, D.F.W., and Handley Page, there is very little difficulty in giving the pilot plenty of control when he wants it.

Argument by Death-Rate.

A few days ago it was cast up at me that, in spite of their stable machines, the Germans had killed during 1913 about six or seven times as many fliers as we have. I have not kept a close check on the deaths in Germany, but I should say for a start that the Germans have done ten or twelve times as much flying, so one might expect more deaths. Remember that last month, at the Johannisthal Aerodrome alone, 2,410 flights were made by 134 different pilots, totaling 313 hours in the air. That is only one civilian aerodrome, though certainly the biggest. Still, I doubt whether 134 civilian pilots all told flew in Great Britain during December. And some idea of Germany's military establishment may be gained from the fact that at the Döberitz military ground I happen to know there are between 70 and 80 machines of *one make* always kept ready to fly, besides others in almost equal numbers.

Also, there are far greater numbers of experimental machines always being tried in Germany. Many of them are put together roughly by inexperienced builders, and so many of them have broken in the air and killed their pilots and passengers. Further, the average German pilot, especially the Prussian, is inclined to be heavy-handed and clumsy, so the number of deaths due to sheer bad flying is probably greater in proportion than here or in France. Yet, in spite of this, they tackle big flights that our people would never attempt, or, at any rate, our manufacturers would not provide machines for. Think of all these flights, over 700 miles in the day, in attempts to win National Fund prizes! Taking it all round, it is rather surprising that there have not been more fatalities in Germany, and I fancy that if one could obtain the figures for fatalities on the inherently stable machines built by really reliable firms one would find they are astonishingly low.

Gadget Stabilisers.

A rather sound argument in favour of "gadget" stabilisers of any type—provided they can be cut out of action when desired—was put to me a few days ago.

LEARN TO FLY

AT THE

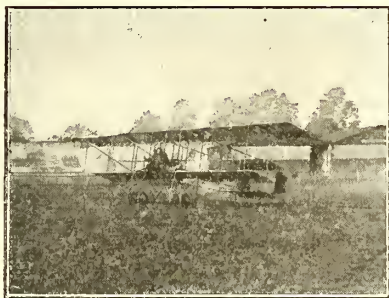
VICKERS FLYING SCHOOL

BROOKLANDS.

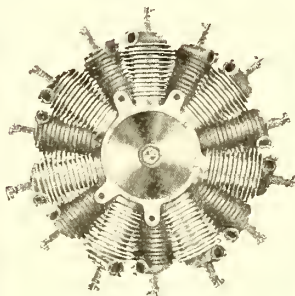
Thorough, Efficient and
Economical Tuition.



VICKERS Flying School, Brooklands



Instruction on the Biplane



VICKERS' 100 H.P.
Radial Engine



Instructing Pupils in Aero Engines



Chief Pilot Barnwell

VICKERS, Limited,
AVIATION DEPARTMENT,
VICKERS HOUSE, BROADWAY,
WESTMINSTER, S.W.



Assistant Pilot Knight

Their advocate pointed out that a pilot on a long flight might be glad to leave the machine to control itself while he had a meal, or restowed luggage or spares which might be casting loose, or simply to have a rest. Also, in the case of a scout flying alone, it would be useful if he could switch in the stabilising machinery while he used his glasses, or his note-book, or his camera. This is, of course, perfectly true, and if by using such fitments on existing machines pilots become used to aeroplanes which fly themselves, so much the better, for it only means that they will ultimately

learn to appreciate still more those machines which are stable because of the lines on which they are designed.

There is at this time of day no doubt that it is possible to build aeroplanes which only need steering while actually in the air, and that those same machines can be made so that the pilot has full control while starting and landing; so what earthly, or aerial, objection can there be to them, except the objection of mankind in general and Englishmen in particular to take up anything new?—C. G. G.

Cliff Eddies.

J. R., writing from Bridport, says:—"I read with interest your article in the issue of the 15th inst upon "Meteorology and Aeronautics," and as you appear to invite replies to your question as to the direction of upward wind spouts off a perpendicular surface, I gather that the point is still a debatable one, upon which the every-day observations, erroneous maybe, of one who is neither an aviator nor a meteorologist, but merely an interested reader of your paper, will not be considered presumptuous.

"Living upon the Dorset coast, and being endowed with the usual observation of the longshoreman, the following incidents impressed themselves upon me before the advent of flying, and since then one has naturally observed the flights and buffetings of birds more closely and tried to connect the two.

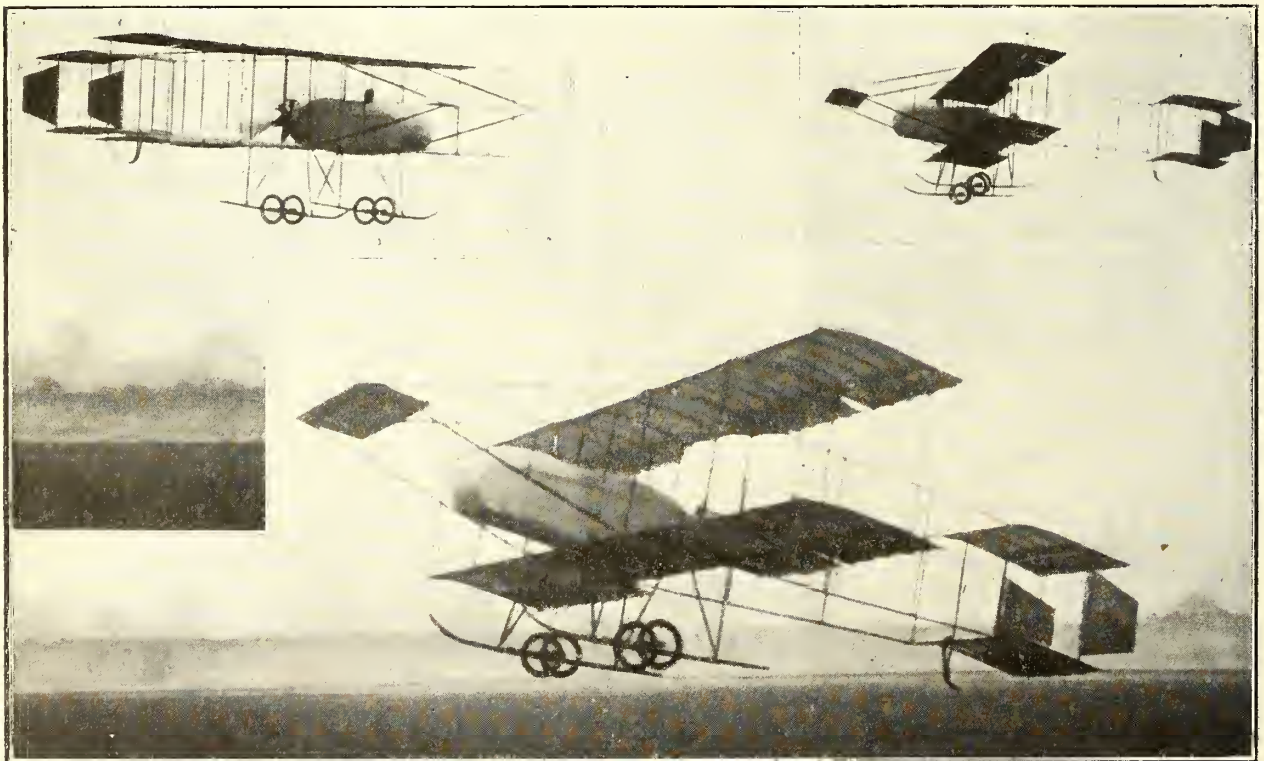
"Firstly, as to the effect of a stronger blast on a perpendicular surface, there is here a perpendicular section of cliff, about a mile long, 200 feet high, with a level plateau on top, which runs inland in one place up to 600 yards. I have noticed that when a gale is blowing from the sea (South) the 'dead area' during which one loses the force of the wind, when nearing the cliff head, is broader in proportion as the wind increases, and I have frequently stood at the cliff head when it has been blowing a gale and raining hard, when it has been possible to keep quite dry for about ten feet inwards from the edge, which does not occur unless the wind is very strong, and would seem to indicate that at least the under surface of the wave is both

higher and broader. As to the height of the upward draught, from observations of gulls and jackdaws leaving the cliff face in a gale I had come to the conclusion that the stronger the breeze the higher they are swept above the edge of the cliff in crossing it to go inland.

"There is also a flagstaff on this cliff about 30 feet high and stepped about 50 yards from the cliff head, and during a southerly gale the flag will blow out stiff to the south'rd, which again only happens when the wind is very fresh, and would appear to be a further argument against the flattening or forcing back of the 'wave'; the flag will also veer in a squall. I have seen birds forced down near the cliff head during a sudden squall, but only for a moment before rising more rapidly again.

"If a momentary flattening out and driving back of the 'wave' does occur, would it not probably be because the squall is usually more advanced in the upper air, and has arrived at a given point before the lower air is affected below that point? This would tend to check the upward draft until the squall reached the foot of the cliff. One feature of a strong breeze against a cliff appears to me to be the considerable increase in breadth of the upward moving air seawards. I have noticed this with the gulls and also that one loses way in sailing anywhere near a lee cliff.

"May I enquire whether the habit of the jackdaw of warping his tail is a trick peculiar to that bird in maintaining his balance? I do not recollect having seen other birds make such violent and perceptible use of it."



The new Vickers School biplane (50-h.p. Vickers radial engine), designed to protect pilot and pupil, who sit side by side, in cold weather. Its speed is about 50 m.p.h. and the engine is giving excellent service.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
 LONDON AERODROME, HENDON.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
 from the FARMAN BROTHERS
 for the building of

HENRY & MAURICE FARMAN

Aeroplanes AND **Hydro-Aeroplanes.**

In Great Britain and the Oversea
 Dominions.

Works and Flying Ground :
 HENDON.

Offices :
 47, VICTORIA STREET, S.W.



ONE of THE FINEST AEROPLANES
 ever designed, if not indeed
 THE FINEST OF ALL
vide DAILY TELEGRAPH

AVRO

NOTHING BETTER
A. V. ROE & CO. LTD.

Contractors to the Admiralty, War
 Office and Foreign Governments,

Clifton St., Miles Platting, Manchester.

Telegrams—Triplane.

Telephone—337 Failssworth.

THE **Sopwith Aviation Co.**

CONTRACTORS TO THE ADMIRALTY.
 AND WAR OFFICE

MANUFACTURERS OF
AEROPLANES AND
HYDRO-AEROPLANES.

Offices and Works :
CANBURY PARK ROAD,
KINGSTON-ON-THAMES.

Telephone
 1777 KINGSTON.

Telegrams :
 SOPWITH, KINGSTON."

The "Times" Newspaper and the Aviation Industry

(Continued)

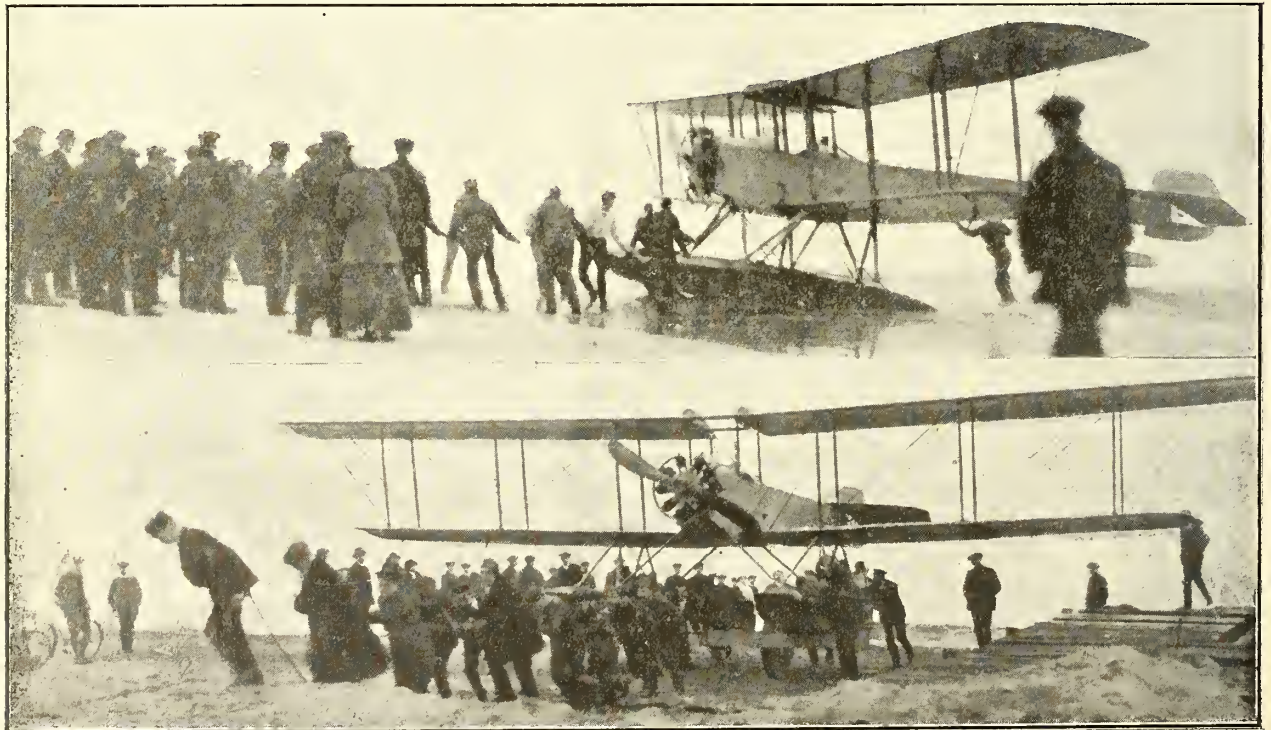
BY W. E. de B. WHITTAKER.

Towards the end of the first of the articles in the "Times" a reference is made to the Government policy in the purchase of aeroplanes designed and built by private constructors. "Any suitable machine on the market is tried, and the performances of Government machines set a kind of standard, which the private constructor endeavours to surpass. It is reported that quite recently a private machine has surpassed, for the first time, a machine of Government design of the same horse-power." One should observe that, while the virtues and acts of Government machines are stated definitely, those of private machines are "reported." Misrepresentation is a fine art, perhaps, but then so is forgery, and one would not expect either pleasant occupation to be encouraged by such a "national institution" as the "Times" newspaper. Yet, if one reads the above quotation carefully, it must be admitted that one writer in that paper practises the art of misrepresentation. When recently a privately designed biplane beat in turn each performance of the mark "B.E." type it was for the first time with an engine of exactly similar make and power to that used on the most efficient Government aeroplane. On other occasions the Government machines have been beaten on the majority of points by other aeroplanes fitted with engines not of the same power, but of lower power. Yet the "Times" correspondent, though he does not lie, would lead his reader to believe that, after months of strenuous effort, one private manufacturer has at last succeeded in gaining an ephemeral victory. The Government aeroplane has done much to incite manufacturers to produce efficient machines possessing certain virtues, but that is no reason for denying credit where credit is due. No institution or private company is able, whatever its wealth and in-

fluence may be, to corner all the intellect in any one profession.

He, our knight of the pen, speaks of the situation in France, and says that the French "authorities find themselves so much embarrassed by the miscellaneous collection of machines of different efficiencies which has been forced upon them that they are reported to intend to confine their purchases in future to three or four standard types, to be built to Government specifications." In truth, it would appear that the French Government has been embarrassed to a far greater extent by the dishonest methods of certain makers and by the delay in deliveries due to the large number of machines on order. When the War Office and Admiralty, after having ordered machines on a definite scale, are able to show that they cannot get deliveries, then will there be truly cause for complaint. The delays admitted at present are due not to a glut of orders, but to a lack of continuous business. Standardisation, held up as so desirable a feature in all matters of matériel and so on, and with absolute truth, is not advisable in the experimental stages of a new science. One can only standardise properly when there is a sufficient number of types from which to select the best features.

The second article opens with a description of the methods of ordering machines in the Army and the Navy. The Director-General of Military Aeronautics and the Director of the Air Department in the second case decides as to which types shall be ordered. They accept advice from various sources, such as the Advisory Committee and from Service pilots. "In the case of the Army, from the Royal Aircraft Factory (with regard to the questions of engineering strength, the presence of adequate righting moments, and aero-



The New Sopwith Seaplane (100-h.p. Anzani) at Yarmouth, returning from a test flight piloted by Lieut. Courtney, R.N., Commanding Yarmouth Air Station.

ACCLES & POLLOCK, LIMITED.

OLD BURY, BIRMINGHAM. Send for 25" X 20 Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST.

ALL SIZES, SECTIONS & GAUGES
OF STEEL TUBE

FOR AEROPLANES.

DOPE WITH
NOVAVIA

9, Coral Street, W.C.

THE DOPE



Even a Scratch Counts

Carry in your pocket the materials
 for dressing cuts, etc.

'TABLOID' BRAND FIRST-AID

Pocket Outfits:—No. 706, 716; No. 710, 210

Sold by all Chemists

BURROUGHS WELLCOME & CO., LONDON

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

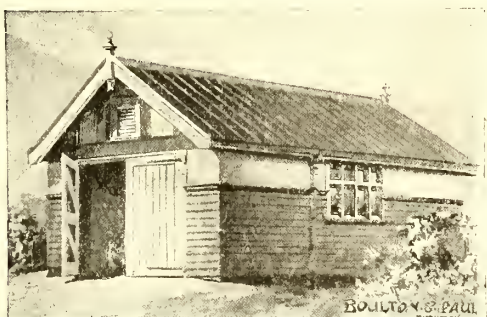
To whom all applications for Gnôme engines and spare parts
 should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR HOUSES, CYCLE HOUSES.

GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

The special design of the

Handley Page Planes

gives to the aeroplane that
 inherent stability which makes
 this machine so easy to learn
 upon, so simple to fly.

FLYING SCHOOL - - HENDON

HANDLEY PAGE, Ltd.

72, Victoria Street, S.W.

Works: Cricklewood, London, N.W.

CONTRACTORS TO H.M. WAR OFFICE

TELEPHONE:
 2574 VICTORIA.

TELEGRAMS:
 HYDROPHID, SOWEST, LONDON.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

dynamical qualities)." On the other hand, the Navy, he says, proceeds on a different system. "The Air Department works in close touch with some half-dozen firms of constructors." . . . "It has no special organisation for aeronautical research, but it has, of course, at its disposal the services of the Advisory Committee for Aeronautics, and it occasionally orders machines from the Royal Aircraft Factory." The last sentence has distinct claims to humour. One can hardly believe that the ordering of three machines from the R.A.F. has any bearing on aeronautical research. It would indeed be better to acquire a number of distinctly inferior machines and learn their weak points, rather than passively admire the many virtues of a much-advertised official aeroplane.

Had the Army adopted the principle which, we are truly told, dominates the policy of the Air Department there would have been no need for the "Times" to defend the Royal Aircraft Factory. All that the aeroplane trade desires is to work in close touch with the Army and Navy. It is an interesting commentary on this defence that in one's own experience, which has been for the past two years fairly extensive, one has heard but few complaints against the naval administration in the Flying Corps, and but little else when the War Office came into the discussion. None can say, despite this so-called "hurried buying," that the Navy has any less efficient a fleet of aeroplanes than has the Army. The absence, save for one or two machines of the "Mark B.E. 2" type, is amply compensated for by the presence of a number of equally efficient aeroplanes built by the despised private manufacturer. If technical opinions expressed by those who have had long experience in aeronautical matters are to be respected, the Navy possesses hydro-aeroplanes not only as good as any in the world, but also equal in comparative efficiency with the aeroplanes in use in the Army. Much has yet to be done, but, having due regard to the short history of water-flying and the many curious problems besetting designers, the Navy has done exceedingly well.

The "Times" correspondent summarises the complaints usually made against the War Office. He admits that private constructors accuse the Factory of too much influence with those in high places, and of too much love for its own types of aeroplanes. He says that, in reply, the War Office might say that "if its pilots show a preference for machines of Factory design, this is partly due to the rigid inspection imposed upon the various makers in the matter of correspondence with drawings, material and manufacture," among other virtues. Here it is implied that mark "B.E." 2 machines have been supplied in such large quantities to the Military Wing as a result largely of the recommendations, or, rather, requests, of military pilots.

There is no question that many pilots do like the machine, and with very good reason, and that many have also asked for the type. These pilots have in many cases asked for other types as well, but while their first desire is favourably received, the second is ignored and shelved. Again, the mark "B.E." machine is by no means universally popular in the Army, though I have just as much chance of proving my contention as has the "Times" correspondent of proving his. As for the safety of the "B.E." biplane, it is certainly not more so than any other machine deserving of Government notice. The "Times" correspondent has referred to three fatal accidents following the Military Aeroplane Competition. It is not improper, therefore, to point out that one fatal accident and several minor accidents have occurred through the collapse of R.A.F. machines while in flight.

He speaks of the certainty of the Royal Aircraft Factory becoming a regular dockyard, "having relations with the trade analogous to those of the dockyards already owned by the Navy. The Army would, presumably, prefer it to be placed under a military officer—in which case the private constructor might easily find himself worse off than he is under a civilian régime." It is unnecessary at this time of day to dwell on the respective values of different codes of morals, but one has an instinctive liking for dealing with men the customs of whose profession are largely based on the personal honour of the individual. One does not desire to make any reflection on those gentlemen in whose hands lies the control of the Royal Aircraft Factory, but tradition and training make so much difference in public behaviour.

It is admitted that, in order to preserve the Royal Aircraft Factory from a charge of favouring its own machines, the formation of an Inspection Department, recruited from other places, was a necessary act. It is true, too, that the formation of this department will do much to restore confidence in the trade and to remove the feeling of injustice at present so strong in the aviation industry.

The "Times" correspondent ends the second article by forecasting the future of the trade as at present indicated. He thinks that the individual flier will be consulted but little, and scientific investigation will take his place. Each machine "will be subjected to prolonged practical and scientific tests." Then, having been proved a safe and desirable aeroplane, the maker of it will be asked whether he can deliver large numbers quickly and well. After that he will receive orders. This has been said so often in the past that one can only wait longer in the hopes of seeing one's dreams come true in the fullness of time. The Factory defender reiterates his former statement that the industry has already "an opportunity of organising his works and training his men by manufacturing to Government designs." Yet we know that those makers to whom orders would have been of the greatest use have been passed over in silence.

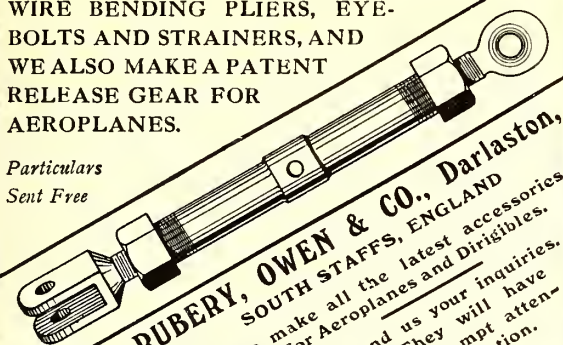
The third and, apparently, the last article is devoted mainly to possible developments in the general organisation of the Royal Flying Corps, such as the formation of a Third Service so loved by some of our leading aeronautical writers.

In giving some "Points for the Constructor," the "Times" correspondent warns those unfortunate gentlemen that it is unwise to quarrel with their bread and butter, and says that, "After all, if it saw fit, the State could dispense with his services altogether." Anything is possible to the State, but all that is possible is not probable, and, if efficiency is desired, it would be sheer lunacy to destroy even such an aviation industry as is existing at present in this country. To kill competition is to delay progress in all save the fine arts.

That such a defence of the Royal Aircraft Factory has been found necessary is a proof that many of the charges have got home. Much has been said about the Factory that is both untrue and unfair. The controversy has been carried on often without that courtesy that so gilds life. One does not agree with or support certain sides of the "campaign," yet it cannot be denied that the aeroplane trade has had a very real grievance in the past. There has been quite enough trouble brought about by the youth and inexperience of the science without the personal element which has been brought in by the civilian advisers to the Royal Flying Corps. The new Inspection Department, if it only removes suspicion by the maintenance of strict impartiality, will have adequately paid for its right to exist.

WE MANUFACTURE FOX'S PATENT
WIRE BENDING PLIERS, EYE-
BOLTS AND STRAINERS, AND
WE ALSO MAKE A PATENT
RELEASE GEAR FOR
AEROPLANES.

Particulars
Sent Free



RUBERY, OWEN & CO., Darlaston,
SOUTH STAFFS, ENGLAND
We make all the latest accessories
for Aeroplanes and Dirigibles.
Send us your inquiries.
They will have
prompt atten-
tion.

Telegrams: "Bucheron, London."

Telephone: 3811 Hop.

TIMBER

for any type of

AIR or WATER CRAFT

Send your enquiries to

JOSEPH OWEN & SONS, LTD.,

199a, Borough High Street, London, S.E.

Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality

ON ADMIRALTY AND WAR OFFICE LISTS



R. W. COAN

219,
GOSWELL
ROAD,

LONDON, E.C.

Telegrams—
Krankases,
Isling,
London.

Telephones—
3846 City
4879 Central.

CELLON

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

IMMEDIATE DELIVERY OF THE BEST DOPE.

Reg. Offices:—

17, OLD BROAD STREET, LONDON, E.C.

Telegrams: "AJAWB. LONDON." Telephone: 5359 London Wall.

Factory:—

**STIRLING CHEMICAL WORKS,
CANNING ROAD, STRATFORD, E.**

SPARS BOOMS

and all
AEROPLANE
PARTS to
makers' own designs

Send us your Requirements and let us quote for you.

R. CATTLE,

Machine Woodworking
to the Trade,

27 Wybert St.
Stanhope St., N.W.

STRUTS

SKIDS

"Palmer Tyres obviously stand in a class by themselves."
(Daily Mail, 13th May, 1913.)

PALMER CORD TYRES

fitted to your car will give you
greater speed, comfort and
safety, together with a reduced
petrol consumption.

May we send you the Palmer Cord
Tyre Book in which you will find
proof of the above?

Will you write for it to-day?

THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

ANZANI AERO ENGINES

1914 MODELS!

25 H.P. 3-CYL. "FAN."	70-80 H.P. 10-CYL.
25 H.P. 3-CYL. "Y."	80-90 H.P. 10-CYL.
30 H.P. 3-CYL. "Y."	100 H.P. 10-CYL.
40-45 H.P. 6-CYL.	125 H.P. 10-CYL.
50-60 H.P. 6-CYL.	200 H.P. 20-CYL.

All Enquiries to be sent to

THE BRITISH ANZANI ENGINE CO. LTD.

30, Regent St., Piccadilly, S.W.

'Phone: 280 Gerrard.

Wire: "Anzani, Piccy," London.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," Friday, January 16th:—
War Office, January 16th—Regular Forces—Establishments:—

Royal Flying Corps, Military Wing.—The following are appointed to the Reserve: Bt. Lieut.-Col. N. J. G. Cameron, Queen's Own Cameron Highlanders; Capt. E. L. Ellington, R.A.; Capt. G. M. Griffith, R.A.; Lieut. R. C. H. Bewes, King's (Liverpool Reg.); Sec. Lieut. D. E. Stodart, Special Reserve; Sec. Lieut. G. N. Humphreys, Special Reserve (December 17th, 1913).

The following appointments were made at the Admiralty on January 9th: Lieut. H. E. M. Watkins, R.N.R., to "Pembroke," additional for course of instruction at Central Flying School, January 27th; Sub-Lieut. F. G. Saunders, R.N.V.R., to "Pembroke," additional, for course of instruction at Central Flying School, as Probationary Sub-Lieut. (R.N.R.), January 27th.

The following appointment was made at the Admiralty on January 15th:—

Promotion.—The following Sub-Lieutenant has been promoted to Lieutenant with seniority of January 15th, and re-appointed: F. E. T. Hewlett.

The following appointments were made at the Admiralty on January 17th:—Lieutenants.—J. T. Babington, to the "Pembroke," additional, for temporary service as Assistant Instructor at Central Flying School; S. D. A. Grey, to the "President," additional, as Squadron Commander for temporary service in Air Department; A. M. Longmore, to the "Pembroke," additional, for command of Calshot Naval Air Station, as Squadron Commander; D. A. Oliver, to the "Pembroke," additional, for command of Fort George Naval Air Station, temporary; Sub-Lieutenant F. E. T. Hewlett, to the "Pembroke," additional, for temporary service as Assistant Instructor at Central Flying School, to date January 15th.

Royal Marines.—Lieutenant C. E. Robinson, R.M.L.I., to the "Pembroke," additional for course of instruction at Central Flying School, to date January 27th.

NAVAL.

There has been a considerable amount of flying during the past week by the officers at the Naval Aerodrome at Port Laing. Major Gordon, R.M.L.I., who has been on a tour of inspection in the north for some time, has now returned to the station and made extended flights on a Short seaplane up and down the Forth. He was joined by Capt. Barnby, who has also done some extended flights on the Borel monoplane. Capt. Barnby has done some remarkably high flights over the district. It is expected that operations will continue until the end of March at this station.

After a considerable period of inaction, owing to the difficulty of building a satisfactory slip-way, and owing to bad weather, flying has been resumed at the Yarmouth Air Station. A week or so since Lieut. Courtney, R.N., commanding the Station, made test flights on a Sopwith biplane 100-h.p. Anzani engine, recently delivered from Isle of Grain.

At Calshot on Tuesday, 13th, Mr. Busteed was out with the Bristol hydro-biplane, 80-h.p. Gnome, awaiting more favourable weather before putting it through its tests for the Navy, and the Sopwith bat-boat is being overhauled at the sheds of Messrs. Hamble River, Luke and Co., Ltd., prior to Mr. Pixton putting it through similar tests.

At the Naval Flying School at Eastchurch there has been much flying. On Monday, 12th, Sub-Lieut. Peirse, R.N.R., was out on S65 in a heavy snowstorm, and later flew over to the Isle of Grain Air Station, returning just before dusk. On Tuesday, Commander Samson, R.N., was out on Short No. 3. Lieut. Littleton, R.N.R., flew S64 to Grain, returning late in a very high wind. Lieut. Peirse was piloting the bomb-dropping machine S34, with Lieut. Clarke-Hall, R.N., as gunner, and owing to a wind of about 40 m.p.h. the pilot had hard work to get the machine moderately steady over the mark. On Wednesday a gale prevented flying, but on Thursday Comdr. Samson did some fine flying on No. 3. Lt. Davis, R.N., on Sopwith 33, went to about 3,000 ft. and made a beautiful spiral descent. Lieuts. Edmonds and Peirse

were also out. On Friday, Comdr. Samson was in the clouds on Deperdussin 7. Sub-Lieut. Peirse was flying well on Avro 16 with passengers. Sub-Lieut. Marix, R.N.R., with a passenger on S62 did some nice fancy flying, and Asst.-Paymr. Finch Noyes, R.N., was up on H. Farinan 31. Capt. Courtney, R.M.L.I., instructing pupils on No. 2. Afterwards the pupils were rolling and doing short straights alone. In the afternoon Comdr. Samson was out on S3. Sub-Lieut. Marix on S64 with passenger. Lieut. Edmonds on S65, and later Sub-Lieut. Peirse on S64. Later Comdr. Samson took Dep. 7, 80 Gnome, into the clouds for some time. Sub-Lt. Maric flew Avro 41, 50-h.p. Gnome. Sub-Lieut. Peirse flew the Avro 16, 100-h.p. Gnome. On Saturday, Lieut. Clarke-Hall, R.N., was out on M. Farman 70, 70 Renault. Sub-Lieut. Marix was on S65 with passengers. Sub-Lieut. Littleton was on S64. Sub-Lieut. Peirse flew S66, the gun-machine with Lieut. Clarke-Hall as gunner. Comdr. Samson was on S3. Lieut. Davis made a fine flight on the Bristol tractor 43, 80-h.p. Gnome. Capt. Courtney was instructing on S2, 50-h.p. Gnome, and Comdr. Samson made a long cross-country flight on Dep. 7, 80-h.p. Gnome. In the afternoon the usual pilots made numerous flights.

As the daily papers have discovered from their Roman correspondents that the Admiralty has ordered three Forlani airships of an improved "Citta di Milano" type, one is now at liberty to disclose what has been known in the inner circle for some time, namely, that these ships are ordered through the big ship-building firm of Sir Wm. Armstrong, Whitworth and Co., Ltd., of Newcastle-on-Tyne. Probably one will be built in Italy and two by Armstrong-Whitworths. One gathers that aircraft works and airship halls are being built by the firm near Selby, in Yorkshire, though, in the meantime, their aeroplane work is being done at Gosforth.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps, Military Wing.—Diary of work for week ending January 10th, 1914:—

Flying Depot (S. Farnborough).—Experimental and repair work was carried on as usual.

No. 2 Squadron (Montrose).—The squadron was employed in removing stores and sheds to the new flying ground at Bloomfield. The snow and weather generally render this operation a slow one.

No. 3 Squadron (Netheravon).—The squadron pilots were out frequently during the week and a few long flights were made.

No. 4 Squadron (Netheravon).—The officer and N.C.O. pilots carried out reconnaissance flights on several days of the week.

No. 5 Squadron (S. Farnborough).—Instructional flights were made by the officer pilots of the squadron, and overhaul and repair work continued.

War Office, January 13th, 1914.

The work of erecting R.A.F. tents still goes on at Bloomfield, and eight row stand at right angles to the wooden sheds under construction.

This has been quite an eventful week at the Montrose Aerodrome. On Tuesday Capt. Becke started out on B.E. 230 to break the distance record held by Capt. Longcroft. He had got about 100 miles on his way when he encountered so severe a snowstorm that he was forced to give up the attempt and return to the aerodrome. He arrived back at Montrose safely after having been away about 2½ hours. Next day (Wednesday) he started at 9 a.m. to make another attempt. But his ill-luck followed him, for he ran into another snowstorm, but managed to get through it. When nearing the Border his engine began to give so much trouble that he was forced to descend at Kingston, four miles from Berwick. He then found that one of the big-ends of his engine was gone. He wired Montrose to send another engine, which arrived with mechanics the same night. On Thursday the new engine was put into place, and, after a test, Capt. Becke started back for Montrose at 3.30 p.m., arriving there about an hour later. Everyone will regret

that so fine a pilot as Capt. Becke should be pursued by such a run of ill-luck.

District flights were made round Montrose by officers of No. 2 Squadron on B.E. 272 almost every day, but the dull, hazy weather did not conduce to high or long flying.

FRANCE.

The representative, M. Adolphe Girod, deputy for Doubs, has put the following questions to the French Minister of War:—(1) How has the national subscription for the purchase of military aeroplanes been employed? What is the number of aeroplanes acquired? In what centres are they? And who are their pilots? (2) What is the amount of the sum not employed in these purchases which has been reserved for the ordinary credits of aviation? The Minister of War has promised to look into the affair and prepare a report.

Further agitation is being raised in France about the unpreparedness of the aviation service for war. It is alleged that there are hardly 100 military pilots properly trained, and that with the exception of five or six the *escadrilles*, as *escadrilles*, are not properly trained. Twenty *escadrilles*, plus one which is still incomplete, exist officially, but of their pilots, some fly every day, others are on leave, others are working in offices or in laboratories, and others only fly about once in six months in picked weather just sufficiently to qualify themselves for their extra pay, so that not more than a third of the pilots could be mobilised at once.

In June, 1913, Mr. Girod elicited the fact that there were 143 military pilots, and 193 pilot pupils, and that since then by no means all these pupils have been appointed to *escadrilles*, and a number of good pilots have been returned to their regiments. Three hundred and seventy brevets have been taken, but more than sixty of these belong to civilian aviators, or to pilots who have been "assimilated" into their regiments. The Budget of the Minister of War for 1914 allows for 169 officers and 200 "sous-officiers." It is pointed out that one generally allows three machines for one pilot, therefore with 369 pilots, 1,107 machines would be necessary, whereas the recent agitation has disclosed that there are only fifty-four machines mobilisable, and 200 others at the disposition of the Army.

On top of all this comes the statement of General Bernard, director of military aviation, about a fortnight ago, who explained the small number of machines ordered by saying "the number of machines to be bought depends on the number of pilots one possesses." M. d'Aubigny of our Parisian contemporary "L'Aero," proposes to inquire into the evil which is destroying French Military aviation.

The lack of military army pilots in France is ascribed by him to the irksome conditions of the service, which is according to certain of the officers, overweighted with routine. The pilots appreciate their extra pay of 300 francs a month, but they find that promotion is slow, and that their brother officers in their old corps are promoted over their heads while they are seconded for flying duty. The amount of flying

permitted is also limited, for it is necessary to obtain special permission from the O.C. each centre to make a flight exceeding 50 kilometres, and if it is to exceed 150 kilometres permission must be obtained from a higher authority, which is said to be quite the opposite of the German system.

The officer pilots are also annoyed at the recent orders which prevented their flights being reported, for as they point out, these orders are simply given to prevent the names of the officers who do the most flying from appearing more often before the public than the names of those who only fly once in six months, and it is said that this also prevents a proper spirit of emulation from being developed between the different centres and *escadrilles*.

For the subordinate officers the situation is no better, and it is even worse, because they have no prospect of the Legion of Honour, while their extra flying pay is only 150 francs a month to start with, 210 francs per month on re-engagement, and 240 francs after five years' service, while flying corps mechanics going up as passengers, only receive 2 francs 5 centimes per day extra.

Further, private soldiers who have taken their Aero Club certificates, even military brevets, have to serve five months in a regiment in the ordinary way, and then on passing into the aviation branch, unless they are actually flying on duty, they receive the large sum of one franc per day beyond ordinary regimental pay.

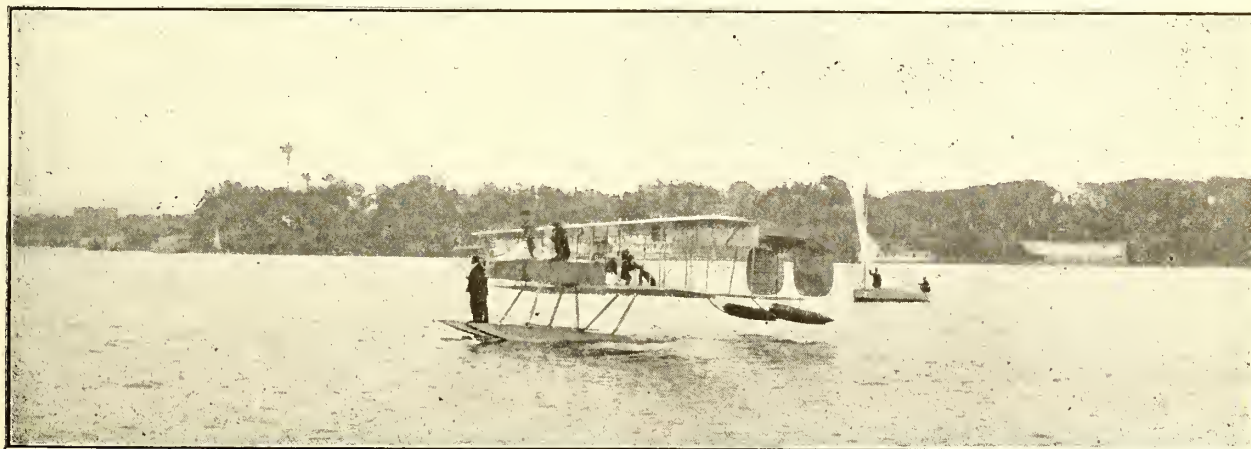
All of which seems singularly homelike to us in England.

On the 14th Col. Bouttieaux, the new commandant of the first aviation group at Lyons, held a review of the machines on taking up his command. He also visited the workshops and barracks of the Lyons detachment. In spite of the cold Brigadier Blot made a flight on a Henry Farman, 80 Gnome.

On January 16th the Parisians saw their first rigid airship manoeuvring over the city. This was the Spiess dirigible for which the French claim that it is the original of all rigid, and that the Zeppelins were copied from the Spiess patents. The ship left her shed at Saint Cyr at 2.4 p.m., piloted by MM. Schelcher and Debroutelle, who were accompanied by Captains Izard and Benedic, Lieut. Meurion, Adjutants Foussier and Jarno, and two mechanics. She returned to her shed at 3.50 p.m. The Spiess was built in the Mallet Works, at Puteaux, and now belongs to the French Army. She is 140 metres long, 16,000 cub. metres capacity, 13 metres maximum diameter, and is driven by two Chenu motors of 200 h.p. each.

On the 16th the "Adjutant Vincenot" left Issy-les-Moulineaux at 5.30 p.m. with nine persons on board, and carried out evolutions in the dark under sealed orders. She did not return to her shed till 11 a.m. next day, having been in the air for eighteen hours. During this period she travelled to the eastern frontier, and, after a scouting trip during the night, landed at Verdun early in the morning, leaving there at 7 a.m. The airship was in command of Captain Joux and Colonel Caron was carried as passenger.

Lieut. Varcin, winner of the Michelin Aeroplane Target



EN ROUTE FOR KHARTOUM: Mr. Frank McClean and some of his passengers on his Short waterplane on the Nile near Cairo.

Competition, has presented the sum of 500 francs to the Caisse de Secours de L'Amicale des Aviateurs—or Aviators' Benefit Society.

Lieut. D'Auguillon, at Villacoublay on January 15th, flew at night both on a monoplane and a biplane, and released from a great height fireballs attached to parachutes, which descending slowly, lighted up a large expanse of ground. These tests point the way to facilitating landings at night.

M. Rugère, on the 16th, put a new Voisin biplane, 80 h.p. Le Rhone, through its tests for the Army, mounting to 1,000 metres with full load in 11 minutes.

INDO-CHINA.

The question of air scouts for attachment to the French possessions in Indo-China is now under discussion. It seems to be expected that the first place to be equipped with aeroplanes is the great fort at Cape Saint Jacques, which is on the mouth of the river 30 miles up which Saigon the capital of Cochin China is situated. It is proposed that secondary aviation centres shall be created at Pnom-Penh, capital of Annam, and at Hanoi, capital of Tonkin, as well as at Saigon itself.

M. Marc Pourpe has already made many flights in this district, including a flight from Saigon to Cape Saint Jacques, which occupied 1 hour 35 minutes, in place of the usual 12 hours. He has also flown from Hanoi to the Great Wall of China and back, as well as in Annam, thus showing that the air in that part of the world is quite suitable for flying. Cape Saint Jacques is to French Indo-China much what Port Arthur was to Manchuria during the Russian occupation, and apparently all defences there are judged by their value against possible Japanese invasion. Saigon is said to be useless as an aviation centre or as a fortified place, because the fortifications are about of as great a perimeter as those of Adrianople, while the garrison consists of 4,000 rifles and two batteries of artillery, instead of the 30,000 or 40,000 men which would be necessary if it had to put up a serious defence; thus it is argued that the seaplanes must primarily operate from Cape Saint Jacques in order that invading forces may be repelled by the troops and vessels there, before they can effect a landing. Cape Saint Jacques has been described by a French officer experienced in that country's service as resembling "a kneeling elephant of herculean strength, but like the elephant, of dim sight—a mere nothing causes it emotion because it does not know what is in front of it; it is necessary for it to have aeroplanes and war-kites."

GERMANY.

A new aerial cruiser is being built for the German War Office at the Parseval works in Bitterfeld; the vessel will be numbered "P5."—B.

It is reported that the Kaiser has presented a medal for bravery to Naval-Lieutenant Bertram for a very extraordinary feat. This officer was flying as a passenger on a biplane piloted by Slatnig, when apparently part of the wing broke. The machine heeled over to one side and would have upset but for the fact that with remarkable presence of mind Lieut. Bertram quitted the passenger's seat and lay flat on the other wing, thus restoring the balance of the machine and allowing the pilot to land on the Havel Lake, whence both pilot and passenger were safely retrieved, though the machine was smashed.

The Germans are already turning their attention to the use of aeroplanes in the Far East. An aviation centre is being organised at Kiaow Chow, which is the most eastern of German possessions. It is understood that a squadron of seaplanes will be stationed there, and that the officers detailed to pilot these machines are now under instruction at Putzig, the seaplane station on the Baltic.

AUSTRIA.

Some astonishment has been caused by the decision of the Austrian War Ministry to refuse permission for military pilots and machines to participate in the Austro-Hungarian Circuit for the Schicht Trophy, which is to be held in April already.—B.

ITALY.

The "Tribuna" says that by the end of this year Italy will have seventeen escadrilles of aviators, and thirteen dirigibles, besides a corps of volunteer aviators.

SWEDEN.

The naval seaplane station at Oskar Fredriksborg under the command of Lieut. Dahlbeck, an ex-pupil of the Grahame-White School, has now ended its work, and after an inspection by Admiral Dyrssen the officers flew all the seaplanes over to Skibsholmen (Stockholm).

An interesting manœuvre took place the other day, when Lieut. Werner on a Henri Farman seaplane met with an accident and sank. A submarine dived beneath his wreck and raised it out of the water, whereupon the seaplane was brought to land. Director Wersen of the Scania-Vabis Aircraft Factory has bought a Henri Farman biplane (80-h.p. Gnome). There is a market here for British machines.—Hr.

TURKEY.

A rumour has been current among the French trade that the Turkish Government is to give a monopoly for the construction and supply of aeroplanes to the Turks to the Hungarian electrical firm of Ganz, this for having promised the Turkish Government to put up an aeroplane factory near the capital, where it would build imitations of foreign machines. As against this rumour, it is said that aeroplanes are already on order from the Blériot and Morane-Saulnier firms for Turkey.

Enver Pasha, the new Turkish Minister of War, is evidently highly interested in aviation, for almost immediately after assuming his duties he visited the aerodrome at San Stefano, and presented to the pilots Fessah and Noury Beys, two gold watches, presents from the Sultan.

SERVIA.

The Servian Government has decided to send at the end of this month 10 officers and N.C.Os. to study aviation in France, so that they may form a nucleus of the Servian Flying Corps.

CHINA.

It is reported that the Chinese Government's aviation school at Pekin actually possesses eight machines, and that 16 new ones have been ordered. All of these machines are French, most of them being Caudrons, and fitted with Gnome motors.

SIAM.

The Siamese Government is apparently taking aviation seriously. Three Siamese officers, all certificated aviators, have now arrived at Bangkok, accompanied by two biplanes and a monoplane, which are in charge of M. Nicolle, an engineer engaged by the Siamese Government to attend to the machines and train the indigenous Siamese as mechanics.

FOREIGN NOTES.

France.

One is always pleased to see designers with confidence in their own machines. At Villacoublay on the 17th, M. Gilbert looped the loop several times accompanied by M. Saulnier.

M. Guillaux, disqualified from competition for the next ten years, has apparently joined the Morane firm, for on the 17th he left Villacoublay on a Morane-Saulnier monoplane, le Rhone motor, for Bordeaux, landing en route near Châtellerault.

M. Daucourt has received from the German aviators associated with the Johannisthal Aerodrome an elegant statuette of an aviator "to express the admiration of the Flugplatz Gesellschaft for his Paris-Berlin flight."

The Aéro Club of France has awarded the prizes to the pilots in the Michelin aeroplane competition thus:—1st prize, 15,000 francs, M. Fourny; 2nd prize, 5,000 francs, M. Gaubert. The third and fourth prizes have not been awarded.

M. Gilbert, after flying from Paris to Mourmelon, accompanied by a passenger on a Morane "parasol" last week, has been entertaining the camp at Chalons by looping over the soldiers' quarters.

It is reported that M. Blériot has been nominated as a candidate for the representation of the southern division of Versailles on the local council.

The remains of the late Hubert Latham were laid to rest on the 16th at Le Havre, and a large number of the notabilities of aviation attended the service at the Protestant Church, among them being M. Deutsche de la Meurthe and Mr. Latham's cousin M. René Labouchère.

It is reported that the firm which has hitherto financed

Vedrine's tour find that the organisation of supplies for his projected voyage round the world is too expensive, and advise him to abandon his "grandiose projects."

The latest loopist is M. Montmain, who on Wednesday 14th accomplished his first loop at Saint Cyr on a Blériot, Gnome engined. It is understood that M. Montmain intends to make an exhibition tour, and will loop on a Caudron biplane as well as on a Blériot.

Germany.

The Committee of the German Aeronautical Association, the Aviation department of the same, and the Aviation Convention have held meetings lately to consider the events of 1914, which are so numerous that it was feared an impossibility for the industry to support the items. Thanks to the large scale on which the industry works to-day its representatives could re-assure the promoters of a full participation, provided prizes of sufficient value are forthcoming.

Whitsun will be a most busy time, as the Upper Rhenian Circuit (Prince Henry Flight), the three-cornered event, Berlin—Leipzig—Dresden, and the Eastern Circuit all take place about then.

The Prince Henry Flight gave rise to lengthy discussions, and a decision has not yet been reached. The new rules propose that the military pilots are to take cash prizes, if they win them, as the civilians do, and not receive a trophy in future. The industry does not favour this, because the military pilots are taught at the expense of the War Office (its upkeep falling on the State), their machines are provided and repaired by the War Office, which also provides the officers' expenses during the flight, and the moneys won go towards a special fund to lighten the burden of the War Office's aviation requirements, a memento being presented to the officer. On the other hand, where ordinary pilots are concerned, the industry has to stand all risks and chances, and in most cases the prizes do not suffice for the expenses incurred, especially after the aviator has taken his share, earned so hardly. It is seldom that the trade can point to a profit on its sporting participation. Negotiations are being carried on, and the result will be announced shortly.

Other events passed by the meeting were the hydro-aeroplane meeting at Warnemünde the Three-Country Flight (Germany, Denmark, Norway), and the speed trials for the 300,000 marks (£15,000), which are to be held immediately after the "Round about Berlin" flight. Then there is the German-Belgian water-aeroplane meeting, and the Monaco rally, in so far as it touches German territory. This event is to start from Gotha. To the above must be added several minor contests and a number of exhibition flights all over Germany.

On January 10th, Ernst Schlegel, winner of the 60,000 mark prize of the National Aviation Fund, carried out his two thousandth flight on the Gotha ground, accompanied by Rosenstein as a passenger. In these two thousand trips Schlegel accomplished a distance of 29,000 kilometres in about 360 hours.—B.

Italy.

The Italian Touring Club, which is allying itself with the Italian Aviation Association in the organisation of the Circuit of Brescia, which includes an aeroplane race at the same period as the famous motor race, is also working out a scheme for a seaplane race from Genoa to Tripoli and back, via Sicily and Sardinia. The distance will be about 1,200 miles, and the prizes will amount to £4,000. The organising secretary of these great undertakings is Mr. Mercanti di Milan.

The four Farmans which M. Bille put through their tests before purchase by the Air Battalion are now installed at Piacenza—flown over from Milan by Signorini, each with a passenger, and luckily just before the long fine spell broke and plunged the Italian climate into keen competition with that of the Arctic Regions. Clement Maggiora wishing to make the most of things found without much difficulty a frozen lake on which to practice ice landing or whatever the right word is. He declares that the machine pulled up much more quickly than in ordinary descents on terra firma. The distance may, however, be more difficult to judge on ice or wheel-slip might cause errors in calculation, and much else may be left to the wise to worry out.

The "City of Milan" disturbed many late-risers at Milan on the 10th in the course of a low flight of 5 hours over that

town. This is the longest non-stop performance that she has done so far, and is thus well behind any of the vessels built at Bracciano in this respect.

I read that a proposed attraction at the Genoese Exhibition in the early summer will be a flight from that city to Tripoli and back for waterplanes, best time to count.

An "amphiplane" with two Gnômes driving one propeller through a clutch (?), which is awaiting its trial flights at Turin, is a large multiplane with the lifting surface suggestive of a Venetian blind, controlled by motor power so as to act as elevator. In photos, the machine appears as a collection of deformable cellules disposed somewhat à la Dunne, the curtains of which are used as rudders, as on the old Savary biplanes.

Two more societies sprung into being with the new year at Turin. One the Aeronautical Industries Syndicate, the other a patriotic civilian and sporting enterprise, a sort of free buttress of the more fettered Aero Club. T. S. HARVEY.

Denmark.

The Farman Frères will open a branch at Copenhagen with spare parts for aeroplanes and motors, as both Navy and Army now use their models, H. Farman (50-h.p. Gnome, front elevator), M. Farman (70-h.p. Renault), H. Farman (80-h.p. Gnome).—Hi.

On Sunday, January 11th, the parties interested in the Scandinavian Seaplane Race, 1914, gathered at Copenhagen, Germany being represented by Capt. von Blattmann. The race is open to aviators with seaplanes and flying boats of all nations and the special conditions are: (1) All machines must carry a passenger, (2) Means of safety are to be carried, (3) Either the aviator or the passenger must be able to start the motor. The race will take place in connection with the seaplane meeting at Warnemünde (August 1st to 9th), the dates and distances being as follows: August 15th, Warnemünde-Copenhagen (86 miles); Aug. 16th, Copenhagen-Helsingfors-Aarhus (94 miles); Aug. 18th, Aarhus-Skagen, probably (86 miles); Aug. 20th, Skagen to Laurvik in Norway, probably (84 miles), and August 23rd, Laurvik-Christiania (64 miles). Among the aviators accomplishing the distance Warnemünde-Christiania, will be distributed £1,000, for Warnemünde-Skagen £500, for Warnemünde-Aarhus £400, for Warnemünde-Copenhagen £350, and for consolation prizes £250. All in all £2,500. Will any British machines compete?—Hi.

U.S.A.

Mr. Lincoln Beachy has qualified as the first indoor flier. On January 2nd he made a 300 feet flight inside the machinery hall of the new Panama-Pacific exhibition buildings at San Francisco.

The latest Wright flying boat is said to be even more successful than previous types, and to approach somewhat to the Sopwith "bat-boat." The hull is said to be built of vanadium steel. The motor is a 6-cylinder 60-h.p. Wright which is placed inside the hull, and drives by chains two propellers of the usual Wright type. The passengers are placed on the deck of the boat above the motor, thus keeping the centre of gravity reasonably high. The surface is about 400 sq. ft., and the machine has lifted four people with a run of about 50 or 60 yards on the water. The motor is fitted with a silencer and an electric self-starter.

Egypt.

Egypt appears to be a particularly interesting place from an aviation point of view just at present, for not only are fine flights done, but first-class seandals are evolved. Here is one. Some two or three years ago one, Bogos Pasha, offered a prize of £400 and a cup for a flight from Heliopolis round the Pyramids and back. The money was paid over to the Aero Club of Egypt, who apparently found it necessary to use it for their own purposes. The Aero Club of Egypt apparently owed the contractor who built the grand stands, sheds, etc. at their aerodrome a couple of thousand pounds, so he took the whole thing over himself, bought a Henry Farman machine, and hired Olivier to fly it. When M. Marc Pourpe made the flight round the Pyramids the other day, he naturally went to the Club and claimed the Bogos prize, but was put off by the statement that as the prize had been unclaimed so long, the donor had given permission for it to be used for other purposes. Apparently M. Pourpe was not satisfied with the explanation, and began to inquire into the matter, whereupon, apparently by some arrangement, Olivier went and did the

flight over again, and it was announced that he had won the prize; M. Pourpe's flight being unofficial.

Naturally, M. Pourpe is proceeding further with the matter, and the French Aero Club will probably take it up. There is no doubt that he did the flight, as it is sworn to by the whole of the British camp at the Pyramids and by the whole of Cairo, as he flew over the city at about 11 a.m. that morning. M. Olivier's share of the arrangement may be estimated when one remembers how on his return from Bulgaria he wrote (or put his name to) a long account of his brilliant exploits over Adrianople, when as a matter of fact he never flew over Adrianople at all, or within a good many miles of it, and that his total flying in the Bulgarian service only amounted to a few minutes. Not only does the incident of the Bulgarian war make him appear untrustworthy, but he appears to be singularly tactless as well, for he apparently endeavours to acquire kudos by swaggering in Egypt about his fighting in the Balkans, and actually calls his new Farman "The Balkania," with the result that all the rich Egyptians, who are, after all, Turkish subjects, refuse to fly with him.

The stages of M. Marc Pourpe's journey from Cairo to Khartoum were as follows:—January 4th, Cairo-Sohag (500 kms.); January 6th, Sohag-Luxor (700 kms.); January 8th, Luxor-Wadi-Halfa (475 kms.); January 9th, Wadi-Halfa-Bou Hamed (340 kms.); January 11th, Bou Hamed-Khartoum (490 kms.). Total, 2,505 kilometres. Thus, in 25 hours actual flying time, at an average of about 60 m.p.h., M. Pourpe has accomplished the journey which usually takes seven days, which at any rate shows prospects for the future. It will be noted, however, that he took seven days for the journey.

On the 16th, M. Marc Pourpe made several flights over Khartoum. Unfortunately, he had forgotten to fill up his tank, and owing to the stopping of his engine was obliged to land on an island in the middle of the Nile, where he left his machine for the time being.

M. Bonnier, who flew from Cairo on his Nieuport on the 14th in 2 hrs. 20 mins., has been fêted by the inhabitants of Alexandria, and on the 16th, when the Khedive's train was starting from that city, M. Bonnier flew over it and threw bouquets on the Khedive's coach. It is reported that the latter "seized one of the bouquets and waved it violently in the direction of the aviator," whether from pleasure or in a threatening manner is not recorded.

Mr. McClean left Luxor at 9 a.m. on January 16th, and with one stop at Edfou for petrol reached Assuan at 11. The journey was uneventful and pleasant. He alighted near the Savoy Hotel off Elephantine Island, and met with an enthusiastic reception from the natives.

On January 19th Mr. McClean left Assuan on his journey farther South. M. Pourpe left Khartoum at 6.30 a.m., arriving at the Atbara river at 10.40 a.m. He intends to land at many places on his return which he passed over without stopping on his way South.

French Opinions of British Work.

Writing in "L'Aero," M. R. Desmons, a leading French technician, says:—"Perhaps I am touching upon a fault inherent to our race, that of not wishing to resort to the evidence of facts and not seeing for oneself, but those who work methodically and scientifically on the improvement of aeroplanes obtain better results than those who, taking no notice of the results acquired either by experience or by the application of laws discovered by our technicians, pride themselves on their inventive genius and their intuition. In his last lecture to the 'Société Française de Navigation Aérienne' Sub-Lieut. Delaunay, an engineer in the employ of the Breguet Company, demonstrated that, departing from French machines and by utilising the results of French experiments (those of the Eiffel Laboratory in particular), the English constructors and the State factory, by slowly and methodically improving machines which at the beginning were clearly inferior to our French aeroplanes, are now building aeroplanes which are clearly superior to the best constructed in France.

"A few days ago we mentioned that a 'Bristol' biplane recently delivered had accomplished the splendid performance of rising to 1,200 feet in 58 seconds with a passenger and 3½

hours' fuel. If we mention that the power of this machine is only 80 h.p. we can see for ourselves that, of the biplane type, we have no machine in France capable of competing with the 'Bristol,' and that only the small Ponnier monoplane 'type cavalerie' is in a position to take up the glove. What is the 'Bristol,' then? A machine derived from our old machines but scientifically studied and improved by a technician, an apostle of the science and of laboratory experiments, one who moreover is French in culture—Henri Coanda, Technical Director of the celebrated English firm.

"Every time moreover that a more or less fortunate discovery appears to run against the established laws, one hastens to proclaim, at the same time as the insecurity of these laws, the 'failure of the science.' That is a very large word. But what is science that its failure is proclaimed at every opportunity? Its definition is complex and perhaps difficult to state in a few words. It can, however, be said that it is composed of two essential parts; analytical and synthetical observation and extrapolation. And this is summed up as follows:—To observe the natural phenomena, arrange them and compare them so as to arrive at the terms of the laws which govern them, laws which will at least permit of anticipating facts not yet observed."

In Memoriam.

The anniversary of the death of Edward Petre, son of Mr. and Mrs. Sebastian Petre, of Tor Bryan, Ingatstone, who met his death at Marske-by-the-Sea, Yorkshire, on Christmas Eve, 1912, in attempting a non-stop flight from Brooklands to Edinburgh, was observed by the singing of the solemn vespers at the Roman Catholic Church of the Sacred Heart, Exeter, when the new oak sanctuary stalls erected to his memory were used for the first time. The stalls, which had been subscribed for by many friends of Mr. Petre and the members of the congregation are the work of Mr. Reid, of Exeter, from the designs of Mr. Edgar Ware, architect, of that city. The Rev. C. W. Smith, a former master and a devoted friend of the late Edward Petre, originated the idea of the memorial and carried it through, Exeter being chosen as an early home of the Petre family.

O Tempora, O Mores.

In a highly interesting article by Mr. A. B. George in the "Daily Mail" of January 16th, on the subject of our failure in the Olympic Games at Stockholm in 1912, occurs this passage:—"Furthermore, the uncouth and ill-mannered conduct of some of our representatives, particularly in the dining hall of the public building where meals were mostly taken, created much unfavourable comment among foreigners, many of whom look on England as the home of good manners." There is a certain amount of consolation in learning that conduct of the particular kind to which Mr. George refers is not confined exclusively to those connected with aviation, but one may point out that the words he uses apply particularly well to a small, happily a very small, number of members of a club where aviators, and more especially ex-aviators, congregate.

It is unfortunate that one should have to make this reference in a public paper, but occasionally a hint conveyed in print carries more weight than verbal admonishment. The small number of members to whom these remarks refer will doubtless recognise themselves, and it is hoped in future they will so amend their behaviour and language when on the Club premises that they will not give offence to more quietly and decorously disposed fellow-members, and it may be well to point out that in the event of their behaviour continuing as at present, it will be the duty of certain other members to petition the committee of the Club that they be removed from membership, for not only are they themselves of rather less than no use to aviation in general, but, unfortunately, it is on record that their behaviour has caused the resignation of other members whose continuance in the Club is very much to be desired.

A Welcome Return.

The many friends he made during his visit to Hendon last summer, will be glad to hear that Mr. George W. Beatty has returned to this country, and that it is his intention, all being well, to establish a flying school, probably at Hendon. The story of his adventures during his recent sojourn in the United States, and more particularly in the city of New York, are highly diverting. We always can do with fliers of Mr.

Beatty's calibre in this country, and his record as an instructor in flying in the United States shows that he should be equally useful as a teacher, for he has trained something like a couple of dozen pilots himself, and not one of them has had a serious accident. He explained his method of teaching in considerable detail to the writer recently, and it is certainly one of the most practical systems yet evolved. Further particulars will be given as soon as Mr. Beatty has decided when and where to establish his school.

The Curtiss O-X Motors in 1913.

With every American flight record of the past six months to its credit and the demand for it consistently in advance of the steadily-increasing supply the Model O-X 90-100-h.p. Curtiss Motor has done all and more than its designers originally expected of it. Yet only eight months ago Mr. J. H. McNamara, superintendent of the Curtiss motor factory, was explaining to the manager, Mr. H. C. Genung, just why he had not telegraphed to Mr. Glenn Curtiss the results of the tests he had been making with the first of these O-X motors. The following is the story as told by the Curtiss publicity department.

"McNamara had rubbed the top of his head almost bald trying to stimulate his thought to a point where it would determine for him why this remodelled 75-80-h.p. Curtiss motor, with the same old bore and stroke, practically the same weight, was showing on the standard water brake an increase of 25 per cent. over the best it ever had done before. 'You see, Mr. Genung,' he explained, 'I just don't dare telegraph Mr. Curtiss what this thing does show. I've only tested her up to moderate speeds, and apparently I'm getting 95-h.p. with lots in reserve. I've checked the figures backwards and forwards, I've tried every way to eliminate the human equation, but every time it comes back to the same thing. Either that motor's turning out better than 12-horse-power to the cylinder, or I'm a Dutchman.'

"He delayed his report for another day or two, but the figures increased, rather than diminished, until at 1,800 r.p.m. the motor was delivering better than 106-brake-horse-power, and that with a brake evidently undersized for the work it had to do. To be sure the weight had been increased by a few pounds; the new valve action and increased bearing surfaces had brought the net total up to 320 pounds, and the gross total ready for a run of four hours, including gasoline, oil, radiator, water, etc., up to 638 pounds. This looked big until compared with the 4-hour running weights of the best of the European motors; for example, the 100-h.p. Gnome and the 70-h.p. Renault. Then the Curtiss O-X figured at a very conservative working speed, shows its real lightness.

"Here is a comparative table, the figures taken from a European publication, and unchallenged so far as I know:—

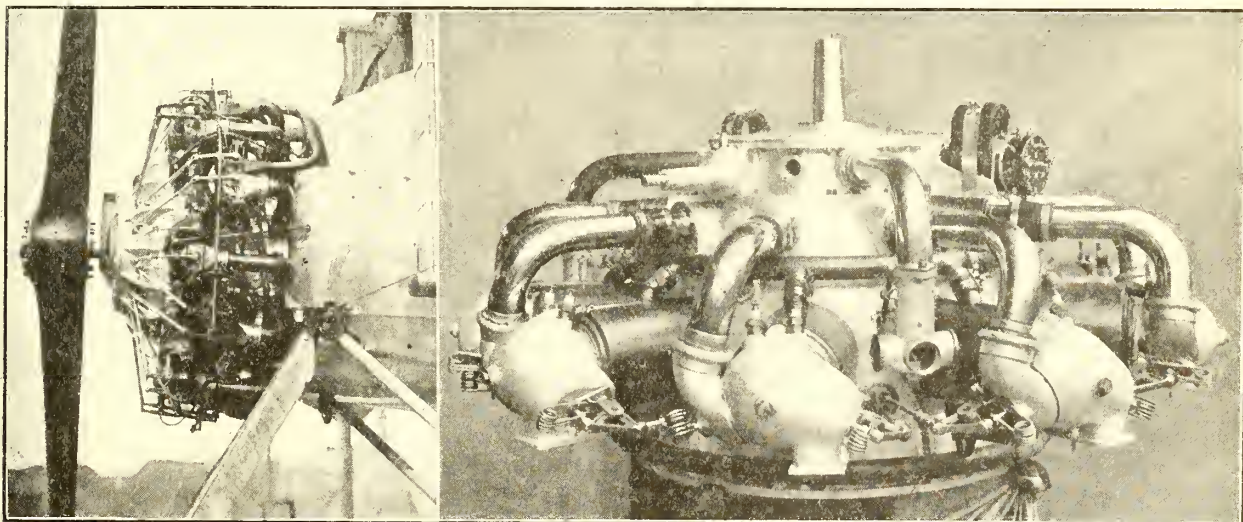
	Weight net.	Gals Gas per hr.	Gals Oil per hr.	Fuel Wt. 4 hrs.	Total Wt. Motor and Fuel	Wt per H.P. for 4 hrs.
Motor.						
100 Gnome	308.64	12.1673	2.7	377.76 lb.	686.4 lb.	8.07 lbs.
70 Renault	462.966	9.26	.79	246.03 "	709 "	9.946 "
90-100 Curtiss	430.	8.	.5	208. "	638 "	7.505 "

"In the above table a net delivered horse-power of 85 is claimed for the 100 h.p. Gnome, the same for the O-X Curtiss and 72 for the 70 h.p. Renault. Weights for the Gnome and Renault motor fuel, etc., I have taken from the foreign publication referred to; those for the Curtiss O-X were supplied by Lieut. B. L. Smith, U.S.N., who had compiled the data from his Navy machine for his own information."

The Salmson on Test.

A very interesting document to those concerned with engines is the Official Bulletin of the Technical Committee of L'Automobile Club de France, which was issued late in 1913, in connection with the tests of aero engines carried out from July 3rd to August 2nd of that year. The best showing in this competition was made by a Salmson motor, 80 horse-power, 7 cylinders, 120 by 140 mm. The Salmson began its tests on July 19th and ran eight hours a day till it completed 100 hours' running, that is to say, 12 days of 8 hours and 4 hours on the last day. During that period it lost 31 minutes altogether through three delays in starting, and it lost two minutes through cleaning a sparking plug on the fourth day, and 22 minutes through changing a magneto on the eighth day. During the last five days it ran untouched. During the whole of the run its revolutions only varied between 1,165 and 1,194 per minute. Its actual running time was 98 hrs. 39 mins. 30 secs., and in that time it consumed 1948.05 kgs. of petrol and 111.63 kgs. of oil, which gives an average of 0.52 lbs. of petrol and 0.03 lbs. of oil per horse-power-hour.

In order to put a limit on fuel consumed, the rules decreed that the total weight of petrol and oil should not exceed 350 grammes (0.75 lbs.) per horse-power-hour, but this rule was allowed to cut the other way also, and while other motors were penalised for excessive consumption, the Salmson was awarded a minus penalisation with a result that in the final classification it was awarded 123 hrs. 3 mins. 54 secs. of running time out of 100 hours, whereas the next nearest competitor only reached 55 hrs. 53 mins. It is worthy of note that although competitors were each allowed half an hour in which to fettle up their engines, after the day's running, the mechanics in charge of the Salmson never opened their cylinders at all, whereas others changed their valves every day.



HIGH-POWERED ENGINES: Two new Salmson (Canton-Unné patent) Engines of the type now coming into use. On the left a 200-h.p. in a Bréguet seaplane, and on the right a 300-h.p. horizontal, for airships. The ease with which silencers can be fitted to the latter should be noted.

The Topsy-Turvy Dinner.

Imprimis—eating a dinner wrong way round—that is to say, starting with the coffee and finishing with the hors-d'œuvres—is not nearly as terrible an ordeal as one would expect, and when the menu has been arranged by a dietetic artist like Herr Pruger, of the Royal Automobile Club, a wrong-way-round dinner is as enjoyable as any other, especially when one's neighbours are congenial and genial souls, and when everything goes with a swing from start to finish. It may be taken for granted that everyone present at the Hendon Aviators' "Looping the Loop" dinner to Messrs. Hamel and Hucks last Friday thoroughly enjoyed themselves, and the whole affair was so novel that most of us will mark it up as a red-letter day in our aeronautical experiences.

There seemed no end to the ingenuity of the organisers, Mr. Richard Gates and Mr. Bernard Isaac. The tables were in the form of a loop, or rather a circle with two tails. In the centre of the loop was a model of the Hendon Aerodrome with silver aeroplanes suspended over it. Hung upside down from the ceiling, like what Mrs. Malaprop called "the Sword of Demicockles," was a huge model Blériot, about half-size, pilot and all, apparently about to descend *en vol plané renversé* at the head of Mr. Grahame-White, who occupied the chair at the top of the loop, with Mr. Hamel on his right and Mr. Hucks on his left. On top of the tables were upturned table-legs, almost persuading one that the tables were upside-down. The waiters wore brown overalls, like those the mechanics wear, our table-napkins were of the finest "B.E." fabric, and the rings were scientifically knotted aeroplane wire. Also, we had our old friend the megaphone commissioner from Hendon, megaphone and all, as toast-master, and excellently did he perform.

The invitations were printed upside-down and hind side first. The illustrations in the beautifully produced menu-cards were upside-down, and in a variety of ways the ready wit of the organisers showed itself. One must confess to a feeling of

relief when one found that the chairs were real chair and not made to turn over mechanically so that the guests had to "loop the loop" between courses. Also, one felt suspicious when one saw on the menu "Sauce Gnome," as an accompaniment to the "Asperges Renversées." Fortunately it was made with oil other than castor.

The Chairman began by giving "The King," and telling us we might smoke. Thereafter a "coon" band played and sang with much syncopated energy during the rest of the dinner. As soon as we had finished the beginning of the repast, Mr. Grahame-White presented gold commemorative medals to the guests of the evening, accompanying each with a tactful reference to his long friendship with the recipients. Mr. Hucks, beginning his reply with "finally" and ending with "Gentlemen and Mr. Chairman," gave a very lucid description of how, why, and when he "looped the loop," altogether an interesting and practical little dissertation. Mr. Hamel, who, like the present writer, is no orator, kept up the topsy-turvy spirit of the evening by telling us in his own charmingly simple way how mortally frightened he was the first time he tried a loop and fell about 500 feet backwards, and how, when he got the machine right side up, he was still more afraid of coming down after having failed, with the consequence that he climbed up higher still and succeeded.

At Mr. Grahame-White's suggestion a telegram of good wishes for a recovery from her illness was sent to Miss Trehawke-Davies.

Mr. Hucks proposed "The Hendon Aviators," telling them how proud they should be of themselves, and Mr. Gates, in reply, kept everyone in screams of laughter with his stories of the early days of the aerodrome—would that one could report him verbatim.

Thereafter, Mr. Hamel, proposing "The London Aerodrome," on the least-said-soonest-mended principle, impressed on his audience that Hendon is the best aerodrome in the world.



The Centre of the Loop at the Topsy-Turvy Dinner. The guests from left to right are:—Mr. W. E. de B. Whittaker, Mr. Harold Perrin, M. Norbert Chéreau, Mr. Bernard Isaac, Mr. Julian Orde, Mr. G. Holt Thomas, Mr. Gustav Hamel, Mr. Claude Grahame-White, Mr. B. C. Hucks, Mr. Richard T. Gates, Sir Bryan Leighton, Bart., Mr. J. Matthews, and Mr. J. D. North. Above is the "looping model," and behind are the overalled waiters.

where one can see racing regularly every week. Mr. Grahame-White, replying, gave a concise resumé of the past year's work at Hendon, and a very imposing list of historic events it makes. Those who want to form some idea of it should write to the aerodrome offices and ask for a copy of last week's programme, if they can get it. Here one would like to thank Mr. Grahame-White for his very kindly reference to *THE AEROPLANE* and its endeavours to assist in popularising aviation, and to say how very much gratified the present writer feels at the enthusiasm with which the name of the paper was greeted by such an eminently practical audience. The outburst of applause was so very unexpected that one feels particularly grateful to MM. Verrier and Noël for thoughtfully providing a hedge of decorative flower-pots behind which one could hide one's blushes. Jesting apart, the record of Hendon's work for 1913 is one which certainly no French aerodrome can approach, and probably Johannisthal is its only Continental rival—for it cannot yet claim that 134 different pilots have flown in a month, which is the fault of Great Britain, not of Hendon or those connected with it.

In proposing "British Aviation," Mr. Holt Thomas, in a very neat speech, bore witness to the splendid flying of our Naval and Military pilots, and said they were second to none in the world, except in numbers. He also referred to the great work Hendon had done in popularising aviation in this country. Mr. Ledeboer replied as lucidly as possible.

"The Foreign Aviators" was proposed by Mr. Harold Perrin, Secretary of the Royal Aero Club, who assured them that they were all jolly good fellows, and we were delighted to have them with us, in reply to which M. Chéreau said that Mr. Perrin must have chosen on the topsy turvy principle to propose this toast, because really foreign aviators were the trouble of his life. Morning after morning, at dawn, Mr. Perrin would jump out of bed and rush to his window at Hampstead, only to retire in disgust, saying 'Condemn that motor-bicycle, I though it was a foreign aviator flying over London to Hendon.'

Then Mr. Gates kept everyone amused for another period while he proposed the Press, telling us that though Hendon could not do without the Press, the Press could not do without Hendon, for instance, *THE AEROPLANE* would have nothing to grumble at if there were no Hendon. He referred to the educative value of the Press, as instanced by an embryo M.P., who, seeing Mr. Willows' new airship for the first time, showed off the knowledge he was acquiring by remarking to him (Mr. Gates) that it was of the same type as the one built and flown by the late Mr. Cody. The writer replied briefly.

The Eastbourne Aerodrome.

Aviation has grown so very much during the last two years that very few people realise how much unreported flying is done in different parts of the country. There has been at Eastbourne for nearly two years an aerodrome and a seaplane station, both in a prosperous condition. Mr. F. B. Fowler, who had the distinction of falling into the Solent two years ago and living, is responsible for the existence of this aerodrome, and he has during past months, aided by Mr. Gassler, trained a number of excellent pilots, most of them soldiers or sailors.

On the aerodrome there are four large sheds, separated from the ground by a dyke. One of the sheds—the largest—is fitted up as a very complete workshop. On the day of my visit a tractor biplane of original design was in course of construction, and two Henry Farman biplanes of modern type were being re-erected. The other three sheds house machines.

At the Crumbles, about half a mile from the aerodrome, are three sheds for waterplanes. These were in constant use during the summer.

The school is well equipped with machines, there being two Farman type box-kites (50-h.p. Gnome), an Anzani Blériot, a Blériot (50-h.p. Gnome), and a Henry Farman biplane (80-h.p. Gnome). In addition there are two waterplanes of Henry Farman type (70-h.p. and 80-h.p. Gnomses).

The country round about is flat and free from obstruction in three directions, the fourth being bounded by the town of Eastbourne. Beachy Head causes less disturbance than would be imagined.—W.

Mr. Handley Page, proposing the Chairman, said they had one thing in common, neither of them had "looped the loop," and then turning to the guests of the evening he quoted the verses from Mr. Lewis Carroll's touching poem about Father William, which say: "And yet you incessantly stand on your head. Do you think at your age it is right?" The following verse brought threats of personal violence from the victims. Mr. Grahame-White preferred to return thanks in song, revealing to many of those present what some of us knew before, namely, that if he did not make a handsome livelihood out of aviation he could easily draw a record salary on the stage as a singer of "chansonnettes." Imagine M. Maurice Farkoa at his best and you have some idea of Mr. Grahame-White's style.

After which the indefatigable Mr. Gates arose and cast the blame for the whole evening on Mr. Bernard Isaac, who assured us that he had enjoyed working out the arrangements quite as much as the guests seemed to have enjoyed the proceedings—the writer knows he did it all in four days and nights, a fairly strenuous form of amusement.

The rest of the evening was occupied by a most enjoyable entertainment. Miss Ethel Levey, whom one might well call the Sarah Bernhardt among variety artists, and one of the few really great personalities on any stage to-day, gave us of her best, accompanied by Mr. Louis Hirsch, the "ragtime" composer. Mr. Grahame-White sang again. Mr. Charles Coborn sang "Two Lovely Black Eyes" in about ten languages, finishing up by singing it standing on his head, Messrs. Robson and Mugford, Mr. Isaac's faithful henchmen, acting as stabilisers the while. Miss Isaac, who has a singularly charming voice, sang pretty balads to us, and Mr. Chignell gave us the benefit of his fine baritone. Miss Tuckfield, who is quite too nice to be hidden behind a piano, accompanied all and sundry with sympathy and ability.

The names of those present at this historic curiosity of a function deserve to be placed on record. They were, in order, by the right of the Chairman, Messrs. Grahame-White, Hamel, Holt Thomas, Orde, Isaac, Chéreau, Perrin, Whittaker, Savage, Willows, Reynolds, Strange, Manton, Walton, Ledeboer (beginning of loop), Beatty, Brock, Desoutter, Cates, Spooner, Capt. Bass, Messrs. Withers, Forrester, Whitehouse, Goodden, Baumann, Marty, Carr, Handley Page, Grey (end of loop), Loraine, Noel, Ramsay, Verrier, Biss, Birchenough, Greswell, North, Sir Bryan Leighton, Bart., Lieut. Porte, R.N., Messrs. Gates and Hucks. It was a truly merry evening, and none of us will easily forget it.

The Leeds Aviation Meeting.

On Jan. 7th, 8th and 10th some fine flying by Mr. Hucks on his Blériot and Mr. H. Blackburn on the 80-h.p. Blackburn was seen at the Aviation Field, Moortown, by a large and enthusiastic crowd. On Wednesday, Mr. Hucks made a couple of flights, looping in all ten times. Mr. Blackburn, who was flying to Leeds from York, had to return to York after reaching Tadcaster, owing to fog and mist. On Thursday, Mr. Hucks looped several times very low down. Mr. Blackburn (who had arrived from York in the morning) made a long flight with Dr. Christie as passenger. During the gale on Friday, Mr. Blackburn made a passenger flight with Mr. C. Bingham, at times rising above the clouds. On the Saturday, despite wind and rain, Mr. Blackburn gave a fine exhibition of banking and diving with Dr. Christie as passenger. Mr. Hucks also flew, but the frightful weather conditions rendered upside-down flying impossible. On Sunday, Mr. Blackburn made a trip with Dr. Christie as passenger to York and back.

Owing to the field being conveniently near the main road a considerable portion of the crowd enjoyed the spectacle free from the outside. Mr. Hucks has been an uncomplaining victim of this kind of thing before, but this time he spoke his mind pretty freely, particularly on that portion of the free sightseers who came in cars. He was backed up by the local press in a most enthusiastic way, and, as a result, a number of conscience-stricken spectators sent him postal orders equivalent to the admission fees they ought to have paid. One writer in particular confessed that the financial aspect of the case had not struck him. Truly we are an unimaginative race.

Flying at Hendon.

Saturday was cold, and although there was but little wind below, the air above had some considerable motion to it. Mr. Brock's Blériot having recovered its health and strength, was the first machine out in the afternoon. The small G.-W. box-kite (which has been in the wars also) was out again. Mr. Hamel was up three or four times during the afternoon in his Morane-Saulnier, turning over frequently when by himself, but keeping approximately right side up when accompanied by passengers. The coming of Chanteloup seems to have inspired the Caudron pilots with still greater confidence in the possibilities of their machines; the banking of Mr. Goodden, for instance, approached perilously near to the scientific standard; six months ago it would have stamped him as a "Hero of the Air." In modern days it is passed by as being merely excellent. M. Baumann also flew excellently, and Mr. Hall with his 35 h.p. Caudron, did as much as the power of his machine permitted, making a particularly fine glide and landing with his engine stopped.

The feature of the speed handicap was the second heat, in which during the last lap, all the machines were strung out in a single line above the far side of the ground, resembling a well-designed freize in motion. Mr. Marty's Morane overtaking the slower machines one by one in splendid style. Mr. Carr's handling of the reconstructed G.-W. biplane called for applause if not for commendation. His engine was not shooting at all well, but he flew exceedingly close to the ground, touching it, in fact, on several occasions—fortunately with his wheels. If one of those drops had occurred at a corner, both Mr. Carr and his machine would have had to retire to their respective repair-shops. He won the race, and deserved it. The risking of necks is one of the phenomena which makes a country great. Mr. Carr, like so many other aviators, has only one neck, but it is a very good one, and is worth much more than the first prize of the grandest speed handicap that ever was.

The statistics of the race itself are as follows:—First Heat (four laps).—1, Mr. Carr (G.-W. biplane, 50 Gnome), 2 mins. 54 secs. start, won in 8 mins. 18 secs.; 2, Mr. Brock (Blériot, 80 Gnome), scratch, finished in 8 mins. 28 secs.; 3, M. Noel (M. Farman, 70 Renault), 1 min. 30 secs. start, finished in 8 mins. 39 secs.; 4, Mr. Goodden (Caudron, 45 Anzani), 1 min. 35 secs. start, finished in 8 mins. 43 secs.

Second Heat (four laps).—1, M. Marty (Morane-Saulnier, 80 Le Rhone), scratch, won in 8 mins. 49 secs.; 2, Mr. Manton (G.-W. biplane, 50 Gnome), 2 mins. 39 secs. start, finished in 8 mins. 49½ secs.; 3, M. Baumann (Caudron, 60 Anzani), 2 mins. 1 sec. start, finished in 8 mins. 49 2-5 secs.; 4, M. Verrier (M. Farman, 70 Renault), 1 min. 15 secs. start, finished in 8 mins. 58 secs.; 5, Mr. Strange (G.-W. biplane, 50 Gnome), 3 mins. 35 secs. start, finished in 8 mins. 59 secs. Mr. Marty's finish in the backwash of the other two made the warping of his wings resemble the flapping of an ornithopter.

Final (six laps).—1, Mr. Carr, 4 mins. 23 secs. start, won in 11 mins. 47 secs.; 2, Mr. Brock, 40 secs. start, finished in 11 mins. 59 secs.; 3, M. Marty, scratch, finished in 12 mins. 11 secs.; 4, Mr. Manton, 3 min. 48 secs. start, finished in 12 mins. 33 secs. This time the handicappers were rather badly left by the fliers. The rebuilt box-kite thus turns out to be faster than Mr. Manton's big machine, which, in spite of excellent handling, is showing a sad tendency to keep on coming in last. Later in the day Mr. Manton made a splendid flight with a passenger, landing from a height of six or seven hundred feet in a particularly beautiful spiral.

Another notable flight was made by M. Verrier in a new Henry Farman. From the attitudes assumed by this machine in flight one imagines that none of the Henry Farman pilots has much to teach M. Verrier, who does all that Mr. Chevillard used to do at Hendon, and more.

M. Noel has caught the habit of stopping his propeller in the air, but the glide of his old "Maurice" does not permit the true pancake descent.

On Sunday the attendance, particularly of motor-cars, was very good indeed. Mr. Hamel again turned over several times, looping during one flight with Lady Victoria Pery as passenger. Mr. Claude Grahame-White flew to "Kenwood," Hampstead (the seat of the Grand Duke Michael), with Mrs. Hall Walker, and on returning took the hon. Mrs. Assheton

Harbord for a short biplane trip. M. Noel again stopped his engine, and glided very beautifully. Mr. Brock rose to 5,000 ft. in his Blériot, and descended in a fine spiral, and Mr. Manton performed some terrifying corkscrews in his G.-W. biplane. M. Verrier on the Henry Farman, flew most alarmingly. Other aviators who flew during the afternoon were Messrs. Hall, Carr and Goodden.

Doings at Brooklands.

The activity at Brooklands shows no sign of decreasing, and there is much of interest to be seen there. At the present moment there are two of the Vickers gun-carrying biplanes, 9-cylinder, 100-h.p. Gnomes, awaiting the completion of their tests, and a new arrival at the Vickers' School is a biplane of the ordinary box-kite type fitted with a 50-h.p. Vickers radial engine, which apparently gives considerably more than its rated horse-power, for, though its cylinder capacity is smaller than that of the various French rotary engines rated at the same power, the speed of the machine is something like 50 m.p.h., in spite of its having a very large closed-in body in which the pilot and pupil sit side by side. The closed body is of course, intended to protect the inmates and facilitate tuition during the cold weather, and owing to the peculiar rounded nose of this body work, the machine is locally known as "the pumpkin." It flies exceedingly well, and the streamlining of the body into the engine shows how it is possible to keep a stationary radial engine cool.

The Blériot works are now ready for occupation, and provide fine floor space for aeroplane work. The block of five sheds form three sides of a square, in the centre of which is a brick building for the smith's shop and welding. It is understood that should the extension of the firm's business in this country warrant it, a proper brick factory will be erected in due course. In the meantime British Blériots will be built at Brooklands, and one gathers that probably some Military pupils will be trained there, but the firm's ordinary school work will continue at Hendon as hitherto. Probably one or more of the new Blériot biplanes will be at work before long.

Mr. Merriam is to bring to Brooklands this week one of the new Bristol biplanes with staggered planes and 80-h.p. Gnomes, which already have put up such fine climbing records.

On Saturday last Mr. Pixton passed the eighth of the Sopwith 80-h.p. biplanes through its military tests at Farnborough, its maximum speed being 74 m.p.h. On Sunday at Brooklands he was flying the ninth and last of this order. One gathers that the next batch of Army machines at the Sopwith sheds will be of the "scout" or "tabloid" type, nine of these having been ordered.

Mr. Jack Alcock has been flying the Maurice Farman, 100-h.p. Sunbeam, regularly, and on Sunday was climbing well on it with two passengers, but one still has doubts about the wisdom of putting so much power and weight on to machines of this type.

Mr. Raynham has been performing with his usual excellence on the Avro 80 Gnome, and on Sunday was doing extraordinarily slow glides from great heights. On one occasion he went up to 3,000 feet in a hurry, shut off his engine, and took just twice as long to come down. It would really be worth while to have official tests of various machines made in this way so as to demonstrate the ratio between maximum climbing speed and slowness in descending with engine stopped.

On Sunday morning Mr. Llan Davies, who recently distinguished himself by landing a Valkyrie monoplane on the top of a tree near Hendon, demolished fairly completely the 50-h.p. Avro which he bought some two or three weeks ago. He shut off his engine at two or three hundred feet, made a good glide down, but unfortunately omitted to flatten out as he approached the ground. Happily he escaped with a few bruises.

Mr. Gaskell Blackburn, whose tractor biplane, 45-h.p. A.B.C., is now taking definite shape, assures me that it is not the Tong May, although there are a few Tong May parts in it. However, on inspecting it on Saturday it seemed that all the weak parts have now been adequately strengthened.

Mr. Waterfall, an ex-pupil of the Vickers School, has been flying the Martin-Handasyde monoplane during the week, and gives promise of being one of our best pilots.

The de Bolotoff seems to have followed the example of the late J. Caesar and to have retired into winter quarters.

The English Nieuport Company.

The advent of a Nieuport Company in Great Britain is an affair of some importance. These machines, of late, have not been seen in this country, and in a matter of almost daily development such as aviation, out of sight is practically synonymous with out of mind.

Nieuport is by no means a name of the past, witness for instance the recent exploits of M. Legagneux, who holds the height record, of M. Bonnier (whose successful "raid" into Egypt has not been appreciated at its full worth in England and who is going on to the Cape), and of M. Hélén who gained the Michelin cup. One may also recollect the flight of M. Levasseur last June from Paris to London in a hydro-aeroplane with a passenger, when he was arrested at Blackwall.

At the moment it is not proposed to build Nieuport machines in England; the first thing will be to show them and their abilities, probably at Hendon.

Particular attention is being devoted to the development of the Nieuport hydro-aeroplanes in France, the name of Commander Delage, now the General Manager of the French company, being well known in that connection. Other names which the company's announcements contain, all equally well known in their respective spheres, are Sir Inigo Thomas, Col. Hume, Messrs. Kapferer, Bazaine, Picard, and Comdnt. Félix. A hydro station will be established at Southampton, where also the new Nieuport tractor boat (for canal and shallow water use will be seen). At least three machines will be exhibited at the next Olympia Show.

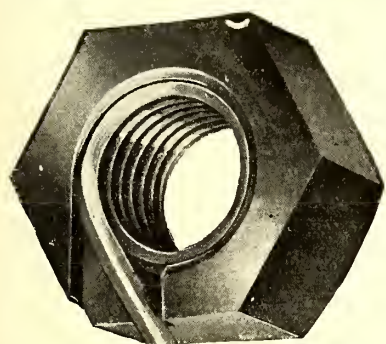
The Nieuport firm claims to produce the best-built machine in the world; this is a big claim and one which would not be made if it could be easily disproved. It is expected that the Nieuport-Dunne will appear in England. This machine will differ considerably in detail—though not, of course, in essence—from the British machine.

An armoured aeroplane has been experimentally flown this week by Dr. Espanet in France, and is proving very satisfactory. It will be examined next week by the French Military Commission.

Finally, this British company is asking for no financial support from the British public; it is, in fact, the French company itself, and has at its back all the wealth of that very wealthy concern.

A New Lock-Nut.

The production of a really efficient self-locking nut for use on bolts subject to vibration has for years formed a problem that has occupied the minds of mechanical engineers.



A recent effort has produced the new lock-nut, known as the "Perfloc," which has lately been introduced by the Engineering Improvement Co., Ltd., of 39, St. James' Street, London, S.W. In unit form it combines the functions of a nut and locking device, and does away with the usual second nut and split pin.

The feature of the "Perfloc" nut is the simple yet ingenious method by which the self-locking action is secured. The nut is itself of standard form and thread, but of a size larger than the bolt in order to allow a spiral spring to be embedded in the thread of the nut. One end of the spring is firmly fixed in the base, while the other is left free, and projects slightly beyond one of the faces of the nut, a slot being cut on the latter to accommodate the free end so that it does not jam on the face of the washer against which the nut bears.

The removal of the nut is quite a simple matter, as it is only necessary to apply a slight pressure to the free end of the spiral-spring thread, which releases the binding action, and it is

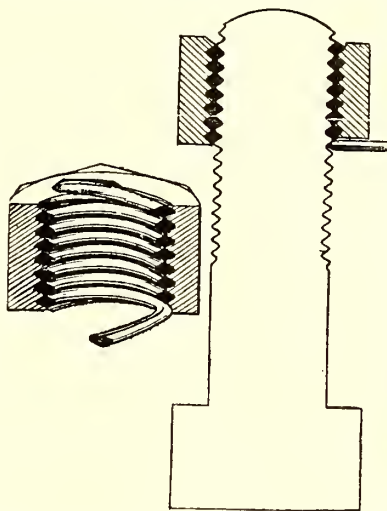
possible to turn back the nut by hand as long as the pressure is maintained.

The "Perfloc" nuts have been subjected to a variety of exhaustive tests at the power station of the London Electric Supply Corporation, at the pumping station of the Rickmansworth and Uxbridge Valley Water Company, at the collieries of the Allanshaw Coal Co., at Hamilton, N.B., and other places, through all of which the claims with regard to the non-slackening qualities and absence of wear even when used under the trying conditions associated with heavy

pumps, have been fully substantiated. Tests have also demonstrated that the new nut, both as regards strength, and freedom from liability to damage by rust, is fully equal to that of the ordinary form, while another advantage lies in the fact that there are no saw cuts or holes in the nut by which dust or grit can enter to interfere with its action.

As will be seen from the accompanying illustrations, the nut is of very simple and inexpensive construction, and is entirely free from

loose parts. It is not only being made in all the standard sizes, but is adaptable to a wide range of bolt sizes above and below the standard dimensions.



MONTROSE

(FORFARSHIRE)

HEADQUARTERS—

2nd SQUADRON ROYAL FLYING CORPS.

Manufacturers and others interested in the construction of Aeroplanes, Waterplanes, and Aeronautic Appliances might with advantage consider the suitability of Montrose as a centre for their industries.

Montrose, the Military Aviation Base in Scotland, situated on the East Coast, has an excellent Harbour and good Railway facilities. Cheap Sites can be obtained for manufacturing purposes, and the local rates are moderate.

The climatic and local conditions for such industries are exceptional, the rainfall being slight, the atmosphere clear and free from fog, the winds steady, and the open spaces in and around the town very expansive.

The Tidal Basin presents a large stretch of water available for practising purposes.

Further information from the

TOWN CHAMBERLAIN, MONTROSE.

The Week's Work.

Weather Reports for Week Ending January 18th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Hendon	Gale Snow	Gale	Gale	Wind	Breeze	N.E. Wind	Almo s Calm
Montrose	Dull	Dull	Haze	Mist	Dull	Shower	—
Calshot	Cold Wind	Cold Fine	Cold Dull	Cold Wind	Str ng Fair	Cold Dull	Cold Dull
Salisbury Plain	Very Windy	Very Windy	Gale	Very Windy	Fair	Windy	—
Brooklands	Tuition Imposs.	Tuition Imposs.	Tuition Imposs.	Windy	Foggy	Good	Calm Sunny
Eastchurch	Heavy Snow	Wind Slee	Wind Rain	Wind Shower	Calm Rain	Calm Fine	Calm Fine

School Reports.

Hendon.—At GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Manton, Strange and Birchenough. Pupils with instructor on machine: Messrs. Cowley, Parker, Moore straights, Mr. Lindop (new pupil) rolling. Straights alone: Mr. Cripps. 8's or circuits alone: Messrs. Norris, Cripps. Machines in use: Grahame-White propeller biplanes.

At HALL FLYING SCHOOL.—Instructors during week: Mr. J. L. Hall, Mr. Denys Ware. Pupil with instructor on machine: Mr. Brookes. Straights or rolling alone: Mr. Brookes (7), Mr. H. Gearing (3). Machines in use: Tractor biplanes, 1 Avro, 2 Caudron; monoplane, Blériot (28 Anzani). On Monday Mr. J. L. Hall flew in snowstorm. On Friday Mr. Denys Ware flew for 25 mins on No. 1 Caudron; spiral glide from 1,000 ft.

Brooklands.—At VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight and Elsdon. Pupils with instructor on machine: Lts Crosbie (11) and Monckton (15) (biplane). Straights alone: Lt Monckton (2) (biplane). 8's and circuits alone: Lt Monckton (3) (biplane). Machines in use: Three propeller biplanes, and No. 5 mono. Mr. Barnwell testing new gun-carrying biplane during week and biplane No. 26 with Vickers' Radial Engine and side-by-side enclosed body.

At BRISTOL SCHOOL: Instructors during week: Messrs. Merriam and Halford. Pupils with instructor on machine: Lt Cull (2 flights) 25 mins; Lt Pigott (1) 10 mins; A.M. Locker (7) 75 mins; Lt Binney (14) 2 hrs; Mr. Racine-Jacques (3) 25 mins; Lt Fraser, new pupil, (1) 10 mins; Lt Palmer (2) 20 mins. Straights and rolling alone: Mr. Racine-Jacques (1) 10 mins; A.M. Locker (2) 15 mins; Lt Watkins (1) 8 mins. 8's or circuits alone: Lt Watkins (1) 12 mins; Lt Pigott (1) 10 mins; Lt Cull (1) 15 mins. Certificates taken during week: Lt Watkins, R.N.; Pigott, R.N.; and Cull, R.N., all on January 15th. Machines in use: Three "Bristol" school biplanes. In spite of a very strong and bumpy wind, Lts Watkins, Pigott and Cull all took their certificates during the morning on January 15th, flying at a height of 600 ft and showing remarkable skill both in handling the machine and in landing.

Martinsyde monoplane flown excellently by Mr. Waterfall. Mr. Alcock out every day on M. Farman-Sunbeam. Mr. Raynham and Mr. Llan Davies on Avro. Mr. Pixton on Sopwiths.

Eastchurch.—On the 16th Mr. Gordon Bell out on new Short tractor (100-h.p. 9-cylinder Gnome), making numerous short flights with passengers and alone. Engine started missing badly, but later took up Mr. Fairey and Mr. Nicholls together. On Saturday Mr. Bell again making pretty flights, taking Mr. Fairey and Mr. M. Wright together across island and doing good spirals. Later up by himself doing fancy flying. In afternoon numerous short flights with passengers two at a time. Early Sunday morning up again doing fancy flying near village. On Wednesday Mr. Maurice Wright had out his glider. Once in strong gust he was thrown right out of the machine, cutting his face rather badly. Later Mr. Marsden made good glide lasting over 5 mins. at about 50 ft.

Salisbury Plain (BRISTOL SCHOOL): Instructors during week: Messrs. Jullerot, Sippe and Voigt. Pupils with instructor on machine: Mr. Stutt (5) 1½ hrs; Capt Walcott (2) 25 mins; Mr. Gipps (1) 13 mins. 8's alone: Mr. Stutt (1) 20 mins. Machines in use: Two Bristol school biplanes; one Bristol tractor biplane.

Windermere.—On Tuesday, January 13th, "Water Hen" out twice with Mr. Lancaster (pupil) at the helm, going well. Friday, January 16th, Mr. Stanley Adams out in "Water Hen."

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD. (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Invention. Particulars, with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

W. H. EWEN SCHOOL OF FLYING, W. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work, £50. Passenger flights from £2 2s.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION Co., London Aerodrome, N.W.

TUITION AT REDUCED FEES.—Pashley Bros. are prepared to take a limited number of pupils for R.A.C. brevet, at specially reduced fees.—Apply PASHLEY BROS., Shoreham Aerodrome, Sussex.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIÈRE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD., 307, Euston Road, London, N.W.** Telephone: 912 North. Telegrams: "Aviprop," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.**

FOR SALE.—Parts and fittings of 50 Blériot wings, uncovered, unused, good order. £15.—Apply, **BROWN, Edgeley Villa, Collindale Avenue, Hendon.**

ENGINES

WANTED, 50-h.p. Gnome in first-class condition.—Send full particulars and price to **THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.**

EMPLOYMENT.

TINSMITH and Sheet Metal Worker, 28 years' experience, "expert," competent organiser, qualified to control men, systematic, and disciplinarian, seeks Responsible Position with a firm who would appreciate ability; highest credentials.—Box 527, **THE AEROPLANE, 166, Piccadilly, London, W.**

WELDER and Metal-Clip Worker wanted.—Apply **HANDLEY PAGE, 110, Cricklewood Lane.**

WELDER.—**SIR W. G. ARMSTRONG, WHITWORTH, AND CO., LTD., Aviation Department, Gosforth, Newcastle,** wants, at once, experienced welder for B.E. parts.

EMPLOYMENT.—First-class Aeroplane Erectors wanted at once; regular engagement after month trial.—Write **SIR W. G. ARMSTRONG, WHITWORTH AND CO., LTD., Aviation Department, Gosforth, Newcastle.**

UPSIDE-DOWN FLYING.

GEORGE LEE TEMPLE is open to give exhibitions of upside-down flying at home or abroad.—**TEMPLE, Hendon Aerodrome.**

WANTED, first-class fitter erectors; must have had previous aeroplane experience.—Write, stating particulars of experience to the **SOPWITH AVIATION COMPANY, LTD., Kingston-on-Thames.**

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—**WULFFING, Aeronautical Engineer, 2, Barclay Road, Walham Green Station.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.**

GRAMOPHONE.—20-guinea handsome, hornless, inlaid Sheraton cabinet, height 4 ft., record cupboard, completely enclosed, on wheels; purchased April; with records, £5 10s. Approval willingly.—**3, Aubert Park, Highbury, London.**

COUNTY BOROUGH OF SOUTHPORT.—HANGAR.—The Corporation of Southport invite applications for the tenancy of a Hangar, with accommodation for one Aeroplane, situate at the north-west corner of the Municipal Golf Links, with an excellent approach to the sands. Applications, stating rent and period of tenancy, should be sent to the undersigned on or before the 30th day of January, 1914.—**J. ERNEST JARRATT, Town Clerk. Town Hall, Southport, 8th January, 1914.**

MODELS.

M.S.C. DURATION MODEL, size 31 in. by 24 in., 5s. Lots of finished parts, with drawings for constructing the above model, 2s. 6d. We stock everything for models.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

T. W. CLARKE AND CO., HAMPTON WICK, MIDDLESEX.

'Phone—**Kingston 869.**

Est. 1906.

THE Pioneer Aeroplane Accessory Manufacturers wish you the Compliments of the Season, and offer to you an accurately marked steel rule, gratis, with every order to the value of 5s. Send along your orders, and you will be delighted. Send stamp for lists. Be in time!

S. J. KEMP & Co., CROWN WORKS, Kingston-on-Thames.
(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)
Every Requisite for Model Aeroplanes. Send 1d. for List.
Models of Every Description built promptly.
Phone 321 Kingston. Telegrams "Garage. Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.
LIQUID SCOTCH GLUE
Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

Confidence in its Reliability!

MR. B. C. HUCKS, in
his demonstrations of
"Looping - the - Loop"
and Upside-down Flying
uses—

PRATT'S Perfection Motor Spirit

B.C. Hucks



By Appointment.

FLYING AT HENDON

SATURDAY NEXT, JANUARY 24th, 1914
16 MILES CROSS COUNTRY RACE at 3 p.m.

COMING EVENTS.

Sat. Jan. 31st. METROPOLITAN MEETING.
Sat. Feb. 7th. FEBRUARY MEETING.
Sat. Feb. 14th. ST. VALENTINE MEETING.

WINTER SEASON—RACES Every SATURDAY

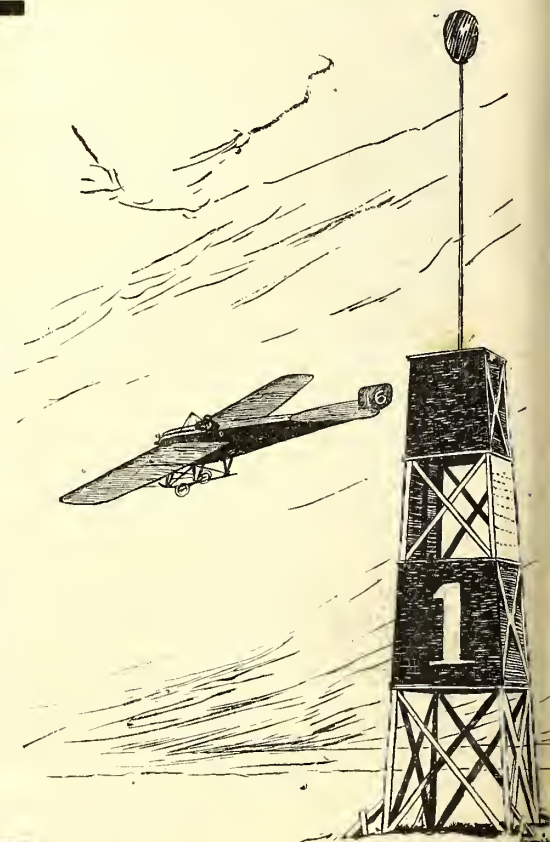
Special Exhibition and Passenger Flights, Every Thursday and
Sunday afternoon, from 3 p.m. till dusk (weather permitting).

Admission, 6d., 1s., 2/6 (Children Half-price).
Motors (including chauffeur), 2/6

The London Aerodrome, Hendon

Proprietors: The Grahame-White Aviation Co., Ltd.

HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."
LONDON: 166, Piccadilly, W. Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."



"THE AEROPLANE," JANUARY 29, 1914.

THE AEROPLANE

12
WEEKLY

Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, JANUARY 29, 1914.

No. 5

COMING HOME.



A new Henry Farman seaplane coming ashore at Yarmouth after completing its acceptance tests, piloted by M. Fischer, with Lieut. C. L. Courtney, R.N., commanding Yarmouth Air Station, as passenger.

CHAUVIÈRE'S INTEGRAL PROPELLERS



HOLD THE WORLD'S RECORDS.

Special Process of Metal Tipping for Hydro-Aeroplanes.

Standard sizes always in stock, and propellers can be supplied with our quick adjusting safety boss.

For full particulars apply to :

THE INTEGRAL PROPELLER CO., Ltd.,

'Phone: North 912.

Telegrams: Aviprop (Eusroad), London.

Works: 1^B ELTHORNE ROAD, HIGHGATE, N.

(1 min. Highbate Tube Station)

The "Bristol" *Flying Schools*

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.

FILTON HOUSE, BRISTOL.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " " "	3	3	6 " " " "	5	6
12 " " " "	6	6	12 " " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

On Scientists and Some Other People.

When the mere rule-of-thumb mechanic, or the man who works out his theories on a system of trial and error and produces certain rules of his own which operate all right in practice, finds that the old ideas on which he has been labouring for years coincide, for all practical purposes, with those recently discovered mathematically by some high-browed scientist, he feels much the same glow of self-satisfaction as that which would suffuse the breast of a tango dancer on finding that one of our elder and weightier duchesses had set the seal of her august approval on that mild and very dull form of co-operative exercise. The fact is that among modern engineers, no matter how well a thing works in practice, it is never considered quite respectable till it has been proved and approved by Higher Mathematics.

Science, with a capital S, is a kind of engineering Mrs. Grundy, and as such is duly to be feared and respected. It was therefore with considerable satisfaction and a feeling of chastened pride that some of us who have been clamouring for a long time in our own unscientific way for inherently stable aeroplanes learned from the lecture and discussion of the Aeronautical Society's meeting on Wednesday of last week that not only does Science recognise the possibility of inherent stability, but that some of those scientists who have had practical experience actually advocate the production of such machines. In particular one would mention Mr. Harris Booth, who has been much associated with Mr. Ogilvie's work, and has just been appointed civilian technical adviser of the Air Department at the Admiralty, and Mr. Busk of the Royal Aircraft Factory, who, although he does not hold an aviator's certificate, is one of the prettiest fliers I have seen, judging from his evolutions on an experimental "B.E." as I saw them a few hours before Mr. Bairstow's lecture. The man who can handle a control lever as well as he can a slide-rule is worth cultivating.

The real trouble seems to be the lack of a common language in which the scientist and the practical man can exchange ideas. The practical man says, "You kick your rudder over, and she does a bank and a nose-dive at once." The scientist says: "Spiral instability arises from the use of too big a rudder; the disturbance may increase progressively instead of decreasing, and is dependent on and controlled by the earth's attraction." The difficulty is almost as great as that which I ventured to suggest exists in an exchange of ideas between pilots and meteorologists. If one could only evolve some method by which more of our scientists could express themselves in ordinary English, progress in aeroplane design would be much more rapid, for each class of worker possesses knowledge which would be of immense value to the other.

The Question of Premises.

Perhaps a person entirely ignorant of scientific methods may be pardoned for doubting whether our scientists base their calculations on sufficient premises. For instance, in endeavouring to explain certain evolutions of aeroplanes as simply as possible, Mr. Bairstow made use of a model monoplane of large size. He explained how side area and tail area in the actual aeroplane take the place of the various vertical and horizontal planes of the mica models with which he demonstrated so neatly the effects of varying surfaces on the stability of the models. Presumably, as the big model was thus used, it represented more or less the scientific ideal of the general lines of a monoplane, but unfortunately it was also in its chief characteristics a very good model of a "pigeon-tail" Blériot (the side-by-side type). This was about the worst aeroplane M. Blériot ever built, for it was nearly as unstable as it could be, and was, besides, notably bad in answering its controls. Mr. Hamel has often told me that he never dared switch off the engine because the machine had no idea of gliding or of keeping under control after the engine had stopped. Theoretically, I believe the design of that type was good, but it refused to work out in practice, and I take it that the reason was that the streamlines from the front of the machine refused to behave as the designer intended. It appears almost possible that, in calculating the effect of the air on certain surfaces of aeroplanes, our scientists may be altogether wrong, because some unforeseen cause may throw the air right away from the particular surface on which the calculations are based. I have been told by a most scientific worker in aeronautics that air is only a fluid like any other, and must obey the same laws. That sounds plausible enough, but when one takes into consideration the fact that air is highly compressible, highly elastic, and about as sticky as treacle (in proportion to its density), and that water is incompressible, inelastic, and hardly at all sticky (viscous is the correct word), one begins to doubt the value of those laws, or, at any rate, to think that they must have been evolved by a very liberal government.

Some Simple Questions.

For instance, one knows that certain propeller blades in water at certain speeds produce cavitation—that is to say, they leave a hollow full of nothing behind them in the water, and this hollow follows the blade round and round. Presumably something of the same kind occurs in an air propeller if it is badly made or used at wrong speeds, but who knows what happens to the hollow? Is it very large or very small, or does it spread out and affect the action of the wings (if a tractor screw) or the tail controls (if a propeller)? Presumably something of the sort accounts for the terrific bump given to the planes by

some propellers every time a blade passes the leading or trailing edge (in tractors or propellers respectively).

Further, while certain machines control very nicely at certain speeds, they are much slower in answering their rudder or elevator controls when diving, though one would expect the increased force of the air to make them answer more quickly. Is it not possible that certain bodies or certain engine-housings may throw a bow wave which, at the correct speed, straightens out before it reaches the tail, but which throws so far out and back with increased speed that the tail controls are working in disturbed air and so are uncertain in their action? I know that mere practical men have ascribed various fatalities in uncontrollable dives to streamline action of this sort, and it would be of much interest to such men to know whether our scientists have studied this phase of the question.

It seems, looking at the matter purely as a rule-of-thumb mechanic, that it would be possible to design an aeroplane in which all the resistances were absolutely perfectly calculated, so far as higher mathematics go, and yet make it almost impossible to fly. One might work out the side area to a nicety; one might locate the centre of thrust and centre of head resistance on a Euclidean point; one might get the horizontal surfaces quite correct for longitudinal stability; and yet, owing to the streamlines set up by the engine housing, or the body, the controls might be practically inoperative at certain speeds or in certain attitudes. Things of this kind are what the practical constructor who builds aeroplanes which merely fly well wants to know. Also, he wants to be told in ordinary English and not in Mathematics.

Can the National Physical Laboratory or the R.A.F. tell him much on these practical points? Mr. A. R. Low was good enough to refer on Wednesday night to certain criticisms of these establishments by "a section of the technical press" (meaning *THE AEROPLANE*), and to refer to their "triumphant vindication." Mr. Low's experience as a scientific designer, if not his practical success as a producer of aeroplanes which merely fly, entitles his dictum to every consideration, but one would like to know how the scientists of either institution have helped practical men by their experiments, beyond the fact that the R.A.F.'s tractor biplane, known as the "B.E.," and designed by an essentially practical man—Mr. Geoffrey de Havilland—has acted as a useful spur to rival manufacturers.

Helping Progress.

It is true that the N.P.L. does its best with such apparatus as it possesses, but the results of its experiments are only made known a year or so after they are carried out, and are then published in the least attractive form possible. Meantime the practical maker has probably smashed a machine or two, and found out the same things by the light of his own intelligence. Also, when the practical man wants a simple experiment or two tried for him, he finds it will cost him a ten pound note or thereabouts for the privilege of receiving an opinion from the young gentlemen whose salaries he is paying.

As to the Royal Aircraft Factory, the results of its experiments are only published in the form of complete aeroplanes which are held up by its supporters as proof of the incompetence of the independent constructor, as, for instance, in that recent series of articles in the "Times" newspaper, which stand out as an example of how a clever journalist may produce an entirely misleading impression without departing for a moment from the literal truth.

The views of a thoroughly practical man are nicely expressed in the following extracts from a letter I received a few days ago:—"I have just looked through

the drawings of B.E.2's and B.E.8's, and the only conclusion I can come to, as a trained engineer, is that they are purposely designed to make them as expensive to manufacture as possible, and I wonder any commercial concern will touch them. This, of course, is just what Farnborough is playing for." It may be well to point out that the contract price paid by the Army for Mark B.E.2 biplanes, without engines, is from £425 to £460 about. If the contractors find that they make a loss, they will refuse to accept the orders, and the R.A.F. will then attain its ambition, which is apparently to manufacture all these machines, regardless of cost, at the taxpayers' expense.

My correspondent continues:—"I will give you a few examples. (1) The tank gauge glasses are curved and let into curved recesses in the tank. (2) Chassis sockets and struts are dimensioned as to their bevels to the nearest *minute*. (3) Two 16 gauge plates are welded together for wiring plates instead of using one 10 or 12 gauge. (4) Special air pumps, petrol screw cocks, and even map cases are all drawn out. For the last a sheet of celluloid is detailed 'with lines engraved and lined in red.' (5) B.E.8 controls are all drawn in millimetres; everything else is in inches.

"The old B.E.'s made to de Havilland's ideas were ordinary sensible jobs. These latter—well, since the 'experts' got on to them they are too awful for words. And, mind you, these experts knew nothing about aeroplanes until they attended in Town once a week a set of lectures at the end of 1910."

A Change for the Better.

However, whatever the R.A.F.'s game may be, whether its treatment of independent constructors has arisen from deliberate knavery or from pure ignorance, a change for the better is now in progress. When once the new Inspection Department is in working order there will be an end to all pretence so far as the R.A.F. is concerned. It will, as the writer of the articles in the "Times" foretells, come out as a direct competitor with the "trade," to which he refers so scornfully. The usual aeronautical correspondent of the "Times," who presumably wrote those articles, is an intimate friend of those in power at the R.A.F., so one may accept his views of their intentions without question.

But the R.A.F. will no longer have the power to "queer the pitch" of the "trade," as it has done hitherto. The supervision of contractors' works and material will come under the Inspection Department, and though the minor inspectors themselves may very possibly be the same individuals as heretofore, one can safely prophesy a change in their demeanour. When they were sure that, in the event of complaints against their behaviour, they would be backed up by higher officials whose ability to be offensive was even greater than their own, they naturally gave rein to the inborn impulse of all small personalities who are temporarily in a position to bully their betters; but when they find that in future their former victims can appeal to officers and gentlemen whose whole nature and tradition breeds impartiality and courtesy, these minor officials will doubtless endeavour to model their behaviour on that of their superiors.

Also, it seems inevitable that the products of the R.A.F. should be inspected with the same impartiality as those of ordinary contractors, except as regards purely experimental machines flown by the pilots of the R.A.F., so that the competition will, at any rate, be fair. The "trade" has little to fear from the R.A.F. as a competitor, for Government dockyards seldom disturb the equanimity of the big shipbuilding firms; in fact, an aeronautical dockyard is practically a necessity, and is certainly desirable. As an experi-

LEARN TO FLY

AT THE

VICKERS FLYING SCHOOL

BROOKLANDS.

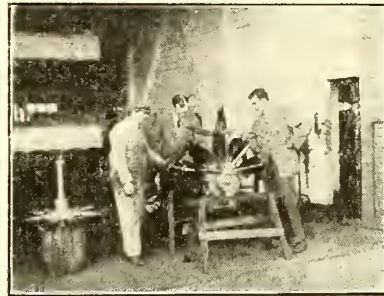
Thorough, Efficient and
Economical Tuition.



VICKERS Flying School, Brooklands



Instruction on the Biplane



Instructing Pupils in Aero Engines



Chief Pilot Barnwell

VICKERS, Limited,
AVIATION DEPARTMENT,
VICKERS HOUSE, BROADWAY,
WESTMINSTER, S.W.



Assistant Pilot Knight

mental workshop, also, the R.A.F. can be very useful, for it will keep the "trade" on the move.

The Danger of Stagnation.

The great danger of the present position, caused by the otherwise welcome activity of the new Department of Military Aeronautics, is that most of the big manufacturers are also busy building B.E.s, that they have neither the room, men, nor time to spare for the production of experimental machines of their own, and so we may easily find ourselves in a year or so exactly where we are now, while Germany, and perhaps even France, may be turning out quantities of inherently stable and yet controllable aeroplanes, of the type presaged by Mr. Booth and Mr. Busk. But if the R.A.F. devotes itself to the production of such machines—and certain experiments I watched at Farnborough on Wednesday point in that direction—we shall be keeping pace with our competitors, even if we are producing less variety of types.

So far as I can gather, the scientists of the R.A.F. seem to favour stability acquired by fin area, which may be either fixed or variable at will, but I am told that what a recent correspondent described generically as "weird shaped wings" can be made so efficient that their lifting power is actually greater than that of wings of the more usual type—at any rate, experi-

ments at Göttingen point in that direction. It is to be hoped, therefore, that we may see real progress made by means of experiments in both the "fin" and the "weird wing" types by the R.A.F. If the results of those experiments could be communicated to the "trade," and if only certain offensive officials at the R.A.F. could be forced to realise that they are there for the nation's good and not for their personal glorification all would be very nearly well, for their experiments might assist and encourage others. What one would like from the R.A.F. would be less self-righteousness, and more self-righting aeroplanes.

In the meantime, the attitude of the practical men generally in relation to the scientists reminds one of that inextricably mixed passage in "Alice in Wonderland," which reads:—

"My notion was that you had been
(Before they had this fit)
An obstacle that came between
Him and ourselves and it."

"That's the most important piece of evidence we've heard yet," said the King, rubbing his hands. "So now let the jury . . ."

"If any one of them can explain it," said Alice, "I'll give him sixpence. I don't believe there's an atom of meaning in it."—C. G. G.

The Royal Aero Club.

At the committee meeting the following aviators' certificates were granted:—724, Lieut. H. E. M. Watkins, R.N.R. (Bristol biplane, Bristol School, Brooklands), Jan. 15th, 1914; 725, Sub-Lieut. J. R. W. Smyth-Pigott, R.N. (Bristol biplane, Bristol School, Brooklands), Jan. 15th, 1914; 726, Lieut. J. T. Cull, R.N. (Bristol biplane, Bristol School, Brooklands), Jan. 15th, 1914.

The following certificates were passed in France:—William Mansfield, Lawrence Fry.

Flying to the Danger of the Public.—Mr. R. T. Gates, the managing director of the London Aerodrome, Hendon, attended at the invitation of the Committee and gave his views on this subject. The Committee is now considering the steps to be taken to deal with all cases of flights made to the danger of the public.

The Aeronautical Society.

OFFICIAL NOTICES.

MEETINGS.—The sixth meeting of the present Session will be held on Wednesday, February 4th, at 8.30 p.m., when the Rt. Hon. the Lord Sydenham, G.C.M.G., K.C.M.G., etc., will preside. Lieut.-Col. F. H. Sykes, A.F.Ae.S., Royal Flying Corps, will read a paper, to be followed by a discussion, on "Further Developments of Military Aviation."

Members are reminded that, under the Rules, they may introduce visitors to General Meetings. Tickets for visitors, not introduced, may be obtained from the Secretary, 11, Adam Street, Adelphi. Light refreshments will be provided after the lecture.

The lecture previously announced for February 18th will not be read. In its place a paper on "Airscrews" will be read by Mr. F. H. Bramwell, B.Sc., A.F.Ae.S., of the National Physical Laboratory.

FINANCE COMMITTEE.—Dr. A. Thurston has been appointed to serve on the above Committee in the place of Mr. Griffith Brewer, resigned.—B. G. COOPER (Sec.).

Britannia Challenge Trophy.

The Committee of the Royal Aero Club, having considered the various performances of British aviators during the year 1913, including several suggestions which had been sent in by members and others interested in aviation, it was unanimously decided to award the Britannia trophy for the year 1913 to Capt. C. A. H. Longcroft of No. 2 Squadron, Royal Flying Corps, for his non-stop flight on November 22nd, 1913, from Montrose to Farnborough, via Portsmouth. The distance measured in a straight line is about 445 miles, but the actual mileage covered by Capt. Longcroft was considerably more. One feels sure that all will join in congratulating Capt. Longcroft on having captured the only award open to the Service

last year. His many fine flights entitle him to the distinction, even if one may argue as to whether this one flight was the best of the year. One also regrets that other competitions are not open to Service fliers as they are in Germany.

The Chairman of the R.Ae.C.

Owing to ill-health, the chairman of the Royal Aero Club, the Marquess of Tullibardine, has not so far been able to take a very active part in the work of the club, and has been recuperating in Scotland. His Lordship hopes to return to town early in February, when he will resume his duties as chairman.

Back to South Africa.

Mr. John Weston, the first South African aviator, who has recently been going through an airship course on the Willows dirigible, is leaving on Saturday for South Africa. Mr. Weston has made altogether 15 trips on the Willows airship, and has now passed for his aeronaut's and airship pilot's certificates. He is thus the only South African to hold all three certificates. He hopes to be back in this country about May next in order to complete the building and testing of some machines now under construction for him.

Certain of Mr. Weston's experiences in this country may be of interest to those supplying parts and material to British aeroplane constructors, and also to buyers of such parts. He says that he has found a firm at Hirstal, near Liège, in Belgium, which supplies metal parts for aeroplanes, made to drawings, at just about one-fifth of the price charged in this country, and that their price for woodwork is about half. As an outstanding example of the unbusinesslike methods in this country, he quotes the fact that he wished to have some specially wide hubs made for his machines, so that the wheels would stand the rough ground in South Africa. The price quoted for these hubs by an English firm was £5 each; the price at which the Belgian firm supplied them was 3s. 6d. He says that he would advise British firms in future when they do not want orders to say so straight away instead of quoting ridiculous prices, as it is only likely to put customers' backs up against them at a time when they may want orders.

Mr. Weston is convinced that for military purposes in South Africa, dirigibles have a great future, because, in the event of a native war, even such dirigibles as the Army recently possessed would be quite useful, for the risks to be taken by the crew would be very small, whereas the risks taken by aeroplane pilots would be even greater than they would be in civilised warfare. In Basutoland especially, where something like a native rising is almost certain in the course of the next few years, the use of aeroplanes would be simply suicidal, for the country is about as level as Switzerland, and the inhabitants would be even less merciful to strangers who fell into their clutches than are Swiss hotel-keepers.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
 from the FARMAN BROTHERS

for the building of

HENRY & MAURICE FARMAN

Aeroplanes
 AND
Hydro-Aeroplanes.

In Great Britain and the Oversea
 Dominions.

Works and Flying Ground :
HENDON.

Offices :
 47, VICTORIA STREET, S.W.

The special design of the
Handley Page Planes

gives to the aeroplane that
 inherent stability which makes
 this machine so easy to learn
 upon, so simple to fly.

FLYING SCHOOL - - HENDON

HANDLEY PAGE, Ltd.

72, Victoria Street, S.W.

Works : Cricklewood, London, N.W.

CONTR TORS TO H.M. WAR OFFICE

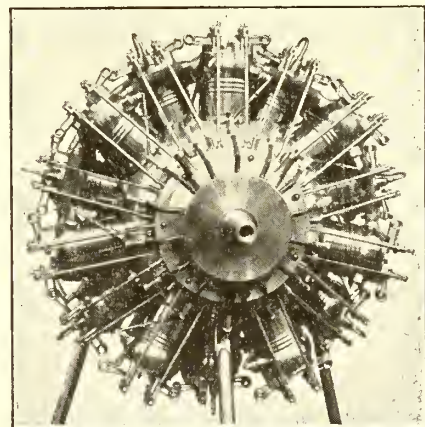
TELEPHONE :
 2574 VICTORIA.

TELEGRAMS :
 HYDROPHID, SOWEST, LONDON.

SALMSON

AERO-ENGINES

SYSTEM CANTON - UNNÉ.



Sole Agents for the United Kingdom :
The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

Expenditure on Aviation in France.

BY W. E. de B. WHITTAKER.

Great nations are frequently compared—always unfavourably—by demagogues to large business firms. In every country there is a number of political critics who sigh, or affect to sigh, for what they call "a business Government." Affairs of state should go, it seems, with the mythical regularity of a drapery stores, whilst a Minister of State would acquire the charming manners inseparable from the shop-walker whose rigid control of the ladies who never sit down, and whose delicate discovery of the shop-lifter combine at once the duties of a Home Secretary and his brother of the Foreign Office. A Prime Minister who was a business-man would abolish all red-tape and the circumlocution of Government methods. Money would be saved the country in sums of infinite immensity year by year, and the commercial spirit, penetrating even into the temples where once the Gods of Dignity and Honesty sat, would herald the millennium in a blaze of joy.

It is easy for the critics to scoff when some stately Government Department carries on a lengthy correspondence about the disappearance of 1s. 7d. in some minor office. It is easy, also, to laugh or rave at apparently needless expenditure on almost obsolete weapons simply because they are standardised. It is easy to do all these things, but until the earth comes to an end, government will never proceed on business lines. It is not a business, and it cannot become one. As has been pointed out time and time again, where there is no profit there can be no commercial enterprise or business. It is the duty of a Ministry to govern, not to barter. All the irritating acts of red-tape, which have provided needy writers with bread and butter for year after year, are, in truth, but means to reduce corruption, to keep "graft" in its proper home—America.

On the other hand, certain principles which obtain in business also form part of statecraft. It is the statesman's business to see that the country he serves gets the highest value for the money it spends, and that all its services are maintained in inexpensive efficiency at all times. Waste and mismanagement are criminal offences in the science of government.

It is at this point that the subject of my article asserts itself. We have in England during the past few years seen the other side of the account. We have

seen how starving a service can be as expensive as throwing money broadcast for all to take. Had the right vote been made two years ago, our aeronautical services would to-day have been unrivalled in the world. Yet, even with all the mismanagement that the sternest of critics lay at the door of the Government, we possess to-day a flying corps which, if small, is at least efficient. Possibly this is to some slight degree the effect of well-directed criticism made by several authorities, both in public and private.

Across the water we have been accustomed to expect perfection in aeronautical matters. The French have shown us the way in the past, and we have expected them to do so in the future. And yet lately there has appeared to be something wrong in the state of affairs in France. The Salon has been disappointing, and the uneasy feeling regarding the military aeronautical services has developed into fear based on certain knowledge.

There is in France a member of Parliament, M. Girod by name, who, coming from Doubs, a pleasant valley on the borders of Switzerland, has his mind turned to heavenly things. He desires, above all, the purity of the aerial services, and has set aside much of his time to ensure that end. He has of recent weeks published some figures in the French papers dealing with the disposition of the money voted for aeronautics in the Budgets for 1912 and for 1913. As it is possible these may be of some interest to people in this country, I propose to deal with them briefly.

In the 1912 Budget the vote for aeronautics was as follows:—

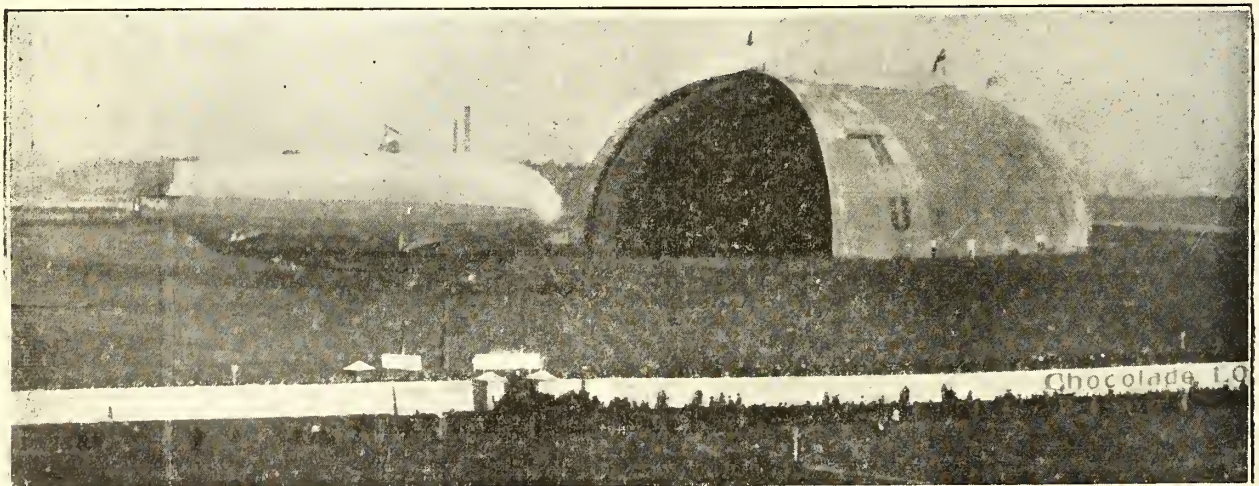
Under Chapter 34 of Section 1	£ 231,200
Under Chapter 103 of Section 3	1,103,410

£1,334,610

The amount expended under Chapter 34 during the year was as follows:—

General charges	£31,200
Aerostation service	22,400
Training of aviation pilots	32,000
Maintenance and repair of aviation matériel	133,800
Experimental work, etc.	14,624

£234,024



The Zeppelin "Sachsen" which flew to Heligoland last week. The photograph was sent by Mr. Cecil Kny, of the D.F.W., from Germany just after he had made a trip in the machine. Note the peculiar shape of the Dresden-Kaditz shed.

ACCLES & POLLOCK, LIMITED

OLD BURY, Send for 25" X 20" Chart of Full-Size Sections,—Post Free
BIRMINGHAM. TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
ONE QUALITY—THE BEST.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

The Funniest Book on Aviation.

"Lighter than Air"

OR THE AVIATORS GUYED

Of all Booksellers or direct from "The Aeroplane,"
166, Piccadilly. Post free 1s. 2d.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

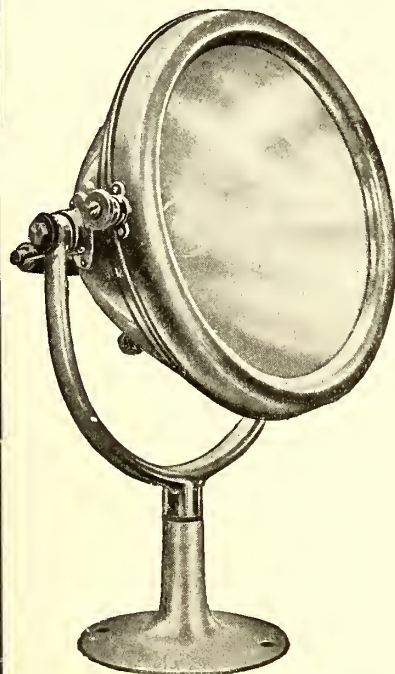
To whom all applications for Gnôme engines and spare parts
should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

ELECTRIC LIGHT

FOR
WATER-
PLANES



This is part of
our Standard
Lighting Set,
and we shall
appreciate en-
quiries for any
class of Electric
Lighting for
Cars, Launches
or Flying
Machines.

RICHARD PAPE, Ltd.,
BELVEDERE, KENT.

CELLON

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

IMMEDIATE DELIVERY OF THE BEST DOPE.

Reg. Offices:—

17, OLD BROAD STREET, LONDON, E.C.

Telegrams: "AJAWB LONDON." Telephone: 5359 London Wall.

Factory:—

STIRLING CHEMICAL WORKS,
CANNING ROAD, STRATFORD, E.



NOTHING BETTER
A. V. ROE & CO., LTD., MANCHESTER

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Thus, the expenditure exceeded the allowance under Chapter 34 by over £2,800. This excess was met from other parts of the vote where a surplus existed.

Under Chapter 103 the expenditure was thus:—

Aerostation	£104,740
General charges	9,480
Purchase of aeroplanes	273,800
Motor transport	52,480
Spare parts for aeroplanes	10,800
Motors and spare parts	59,600
Oil and petrol	20,960
Maintenance of escadrille cars	6,720
Semi-permanent installations of centres	56,720
Repair-shops at centres	6,520
The Biskra centre	8,120

£609,940

Add to this a sum of £265,000 expended locally by the engineering service in the erection of buildings at centres and ports d'attache, and £12,000 transport charges, and the total expenditure under Chapter 103 amounts to £886,940 in all. As the total vote for Chapter 103 was £1,103,410, a sum of £216,470 of the vote is cancelled.

During the year there was spent on aviation purely, under Chapters 34 and 103, a sum of £818,860. In 1912 there were in the French army 260 aeroplanes capable of cross-country work and 110 for school use only. Estimating these at a reasonable figure, their value amounted to £297,200. Deducting from this the value of the aeroplanes, 208 in number, left over from 1911, the capital expenditure on aeroplanes during 1912 was £188,360. Adding together this sum and the capital expenditure on buildings, etc., in the different new centres, on motor-cars, on stocks of oil and petrol, on spare parts for motors, and other miscellaneous items, the total capital expenditure during the year was, roughly, £520,000. Thus, there was a sum of £280,000 for the creation of pilots only. As only 150 were trained, this implies that each cost the country £1,840. Add to this the special indemnities paid to each military aviator, and the price becomes well over £2,000 a head! We in Great Britain have suffered for our sins in the incompetence of our rulers, but even we can show a better balance-sheet than this.

M. Girod then treats of the 1913 Budget. As the year is not politically at an end, it is impossible to give definite figures of expenditure. The Vote for aeronautics was allocated as follows:—

Credits for 1st Section for aerostation and aviation	£270,486
Credits for the 3rd Section:	
Aviation	£794,000
Aerostation	353,712
	1,147,712
Aeronautical pay	82,701
Credits for cancellation from 1912	216,000
Total	£1,716,899

The London to Paris and Back Race.

The Royal Aero Club has communicated its views in connection with the London to Paris Race to the Aero-Club de France, which is now considering the matter, and as soon as the various points have been agreed upon, the regulations will be issued. It is proposed to hold the race on Saturday, May 9th, 1914.

The Hamel-Garros Match.

Mr. Hamel's manager, Mr. W. E. de B. Whittaker, desires us to state that Mr. Hamel has never issued a challenge to the aviators of the world, but that he has challenged M. Garros, who is recognised as being one of the world's finest fliers, and

M. Girod then adds the total expenditure of the years 1912 and 1913. The result is a round sum of £3,040,000 spent entirely on military aeronautics. This, as against £809,000 spent on military aviation in England in the same two years (1912-3, £308,000; 1913-4, £501,000). Adding in our naval expenditure, we have only spent a little over a third of the sum laid out by our neighbours. It appears also that, discontented though we may be with the size of our own flying services, they are in a far more efficient condition than those of France. *En parenthèse*, it has taken me two years to admit this.

In return for this expenditure of money there were in the French service in June last 54 mobilisable aeroplanes, 200 unattached and 110 for school use only—that is, 370 in all. Another 238 were to be provided during the current financial year. The number of military pilots at the same date was 143, and of pupil-pilots 193. This number has been increased by about one-third during the year.

As was pointed out last week in the French military notes, the state of affairs in the different centres is simply appalling. According to M. Girod, petrol is often delivered to centres without previous argument as to the price, the Government having later to settle at any amount the supplier likes to impose. Petrol was paid for at Versailles at 40 centimes the litre, while at Villacoublay, two miles away, the price was 60 centimes. The price of castor oil in the same centres also varied from 90 centimes to 1 fr. 55 the kilogram. These last prices are extracted from the official report of the aviation commission presented in June last. Propellers have been sold to the aeronautical services at £10 apiece in one place and £22 apiece in other places. Even the nepotism which could permit a family of mice to travel by air from Farnborough to Montrose is less shocking than is this revelation of the methods of the military aerial financiers of France. Such an exposure is painful in itself, apart from the political effects.

Each nation has been able in the past to form some idea of its neighbour's progress in matters aeronautic, and it has been known for some time that all was not well in France. Even so, it was not possible to imagine that things had reached so serious a stage as has been shown lately. It is unfortunate that in France, if two political bodies quarrel, they find no objection to printing semi-confidential documents which in this country would be regarded as almost sacred. If a general is dismissed from his post he proceeds at once to publish in the French Press any confidential reports which reflect on his opponents. The public service is made a weapon in personal squabbles in a manner not comprehensible in more cold-blooded nations.

Self-congratulation is always an evil and dangerous thing, and while we may, like the Pharisee, thank God that we are not as other men are, it is well if we take warning in time and so order matters that no similar fate can befall us before or in the time of need.

that a match has been arranged between these two famous aviators to take place in France on February 22nd.

Our Post Office.

A wire was sent by some friends to Lieut. Seddon, R.N., three days after his flight to Plymouth, to congratulate him on his promotion to Squadron Commander. It was addressed:—"Lieutenant Seddon, Commanding Naval Seaplane 73, Plymouth." The following day the senders received one of the usual printed G.P.O. forms of notice of non-delivery of telegram, which ran as follows:—"We have to inform you that your telegram was not delivered for the reason stated below." And the reason given was: "Seaplane flown."

They are evidently smart people at the Plymouth post office, and the newest cause of non-delivery is worth putting on record.

Naval and Military Aeronautics.

GEAT BRITAIN.

From the "London Gazette," January 23rd.

War Office, January 23rd—Regular Forces—Royal Flying Corps—Inspection Department: Captain Ralph K. Bagnall-Wild, retired pay, to be Inspector of Engines. Dated January 6th, 1914.

Admiralty Appointments, January 22nd—Promotion: Lieut. J. W. Seddon has been advanced to Squadron Commander, with seniority of January 22nd.

Admiralty Appointments, January 23rd—Paymasters: H. A. Michell, to the "Pembroke," additional, for Naval Airship Section, Farnborough, to date January 22nd.

Lieut. R. A. Wilson, graded as Flight Commander, to date October 1st, 1913.

Commander Raymond Fitzmaurice and Lieutenant R. H. Clarke-Hall, who are appointed for wireless telegraphy and armament duties with aircraft, respectively, are graded as squadron commanders.

The following naval officers have joined the Central Flying School for instruction for service in the Royal Flying Corps (Naval Wing):—Lieuts. B. D. Ash and J. T. Cull, and Sub-Lieut. J. R. Smyth-Pigott, R.N.; Lieut. C. E. Robinson, R.M.L.I.; and Lieut. H. E. M. Watkins and Probationary Sub-Lieuts. C. Draper, F. G. Saunders, H. A. Busk, E. T. Newton-Claire, H. B. Martindale, and R. W. R. Gill, R.N.R.

According to the latest Army List the following officers have been appointed to the Central Flying School for the first instructional course of 1914, commencing on January 27th:—Capt. B. C. Fairfax, Durham Light Infantry; Capt. L. E. O. Charlton, D.S.O., Lancs Fus.; Capt. C. P. Downer, North'n Regt.; Capt. T. H. C. Frankland, R. Dub. Fus.; Capt. R. A. Boger, R.E.; Lieut. A. C. E. Marsh, R.H.A.; Lieut. A. E. Borton, R. Highrs.; Lieut. A. F. A. Hooper, N. Staff. R.; Lieut. H. F. Treeby, W. Rid. R.; Lieut. H. J. A. Roche, R. Muns. Fus.; Lieut. R. J. F. Barton, R. Sc. Fus.; Lieut. W. F. MacNeece, R. W. Kent R.; Lieut. H. F. M. Worthington-Wilmer, R. Scots.; Lieut. W. R. Freeman, Manchester R.; Lt. W. H. C. Mansfield, Shrops. L.I.; 2nd Lieut. W. R. Read, 1st D.G.; 2nd Lieut. C. B. Spence, R.F.A.; 2nd Lieut. J. H. M. Stevenson, R.G.A.; 2nd Lieut. W. F. R. Dobie, Gordon Highrs.; 2nd Lieut. A. Loftus Bryan, South Irish Horse; 2nd Lieut. C. F. Beevor, 18th Hussars, Spec. Res.; 2nd Lieut. (local 2nd Lieut.) W. W. A. Burn, N. Zea. Staff Corps.

NAVAL.

On Wednesday 21st, Lieut. J. W. Seddon, R.N., commanding Isle of Grain air station, flew on a Maurice Farman (Salmson engine) from Grain to Plymouth in order to assist in the search for the lost submarine A7. He was accompanied by Engine Room Artificer Teasdale. The machine left Grain at 9.15 a.m., passed Beachy Head at 11.40, Selsey Bill at 12.20, and arrived at Calshot at 12.40. Leaving again at 2.20 Lieut. Seddon arrived at Plymouth at 4.30 p.m. The machine was assisted by a steady wind, and as the distance was 350 miles, its flying speed was a little over 60 m.p.h. At the same time Lieut. Brodribb, R.N., with Admiralty seaplane No. 82, and a working party, left Isle of Grain by train for Plymouth. On the following day Lieut. Seddon flew over the place where the submarine had been located, and on Friday he started to fly back to Isle of Grain.

It is of interest to note that the negotiations for the Forlanini rights in this country, which have been under discussion for some considerable period, have been carried on in Italy between the Forlanini Co. and Armstrong-Whitworths, and the British Admiralty, by Mr. Harry Delacombe, of the firm of Delacombe and Maréchal, 166, Piccadilly, W. One Forlanini has been definitely ordered through Armstrong-Whitworths, to be built in Italy, the order for the other two to be built in England being contingent on the first being satisfactory.

There seems to be a good deal of misapprehension as regards the gradings of officers in the Naval Air Service, judging from various articles and letters in the Press during the past few days. The Naval Air Service being officially the Royal Flying Corps, Naval Wing, the officer-aviators are graded in the same way as the officers of the Military Wing, that is to say, there

are Flying Officers who pilot machines, Flight Commanders each of whom nominally commands a "flight" of four machines, and Squadron Commanders each of whom theoretically commands a squadron of twelve aeroplanes, together with their crews and transport. "Squadron Commander" and "Flight Commander" are neither rank nor titles, therefore a Squadron Commander or Flight Commander should not be addressed as "Commander." In the Military Wing, Squadron Commanders are either Majors or temporary Majors, and Flight Commanders are either Captains or temporary Captains, their pay, etc., being practically equivalent to that of officers of these ranks in other branches of the Service plus special flying pay. In the Naval Wing, Squadron Commanders and Flight Commanders are usually Lieutenants in the Navy, though in order to make their actual ranks as well as their gradings correspond to the Army, those in the more responsible positions are generally given an extra half stripe, while officers of the Royal Marines are given temporary rank corresponding to those in the Army.

Major Gordon, R.M.L.I., and Capt. Barnby, R.M.L.I., started out from Port Laing on Tuesday on Short seaplane No. 42, and alighted off St. Andrews. In attempting to start again the floats were so much damaged that the machine was taken ashore.

It was there converted into a land machine by fitting it with wheels. Major Gordon had some trouble with the controls while putting the machine through its tests over the sands, but it got away safely. They arrived at the Dysart Aerodrome on Wednesday, and, on the following day, flew it down to the new aerodrome at Broomfield, where it is now housed.

A new Henri Farman seaplane (80-h.p. Gnome) with sprung floats of the Deauville type, was put through its tests last week at Yarmouth by M. Fischer, Lieut. Courtney, R.N., commanding Yarmouth Air Station, acted as observer-passenger.

At Calshot Air Station on Monday the Sopwith biplane (100-h.p. Anzani) was up for a short flight, Sub-Lieut. Travers, R.N.R., piloting, and on Tuesday the Borel monoplane was out for test. On Wednesday, Lieut. Seddon, R.N., called at Calshot for petrol on his way to Plymouth, and on Saturday the Borel was out again, flown by Sub-Lieut. Travers.

At Eastchurch on Monday there was much flying. In the morning Capt. Courtney, R.M.L.I., was on Bristol tractor 43. Sub-Lieut. Littleton, R.N.R., on Dep. 36. Sub-Lieut. Marix, R.N.R., on Bristol 43, and Sub-Lieut. Peirse, R.N.R., was on Sopwith 27. Capt. Courtney was alone on Sopwith 27. Later Sub-Lieut. Peirse made high and long flights on Dep. 36. Capt. Courtney was also on same. On Tuesday Comdr. Samson was on the Short Tractor 100-h.p. Gnome with Mr. C. R. Fairey, and later on S3. Wednesday was again good for flying. Sub-Lieut. Marix, R.N.R., made numerous flights on S64 and S65. Sub-Lieut. Peirse made a long trip on S65. Capt. Kilburn then took S65. Lieut. Collett was also on S65. Comdr. Samson did spirals on Short tractor 10. Sub-Lieut. Peirse piloting with Lieut. Clarke-Hall as passenger were on the bomb-dropping machine S34. Lieut. Collett was up again on S63. Sub-Lieut. Marix made a long flight on Dep. 36. Telegraphist Sparks made a long high flight on M. Farman 70. Later Ldg. Snn. Bateman took a passenger on same. P.O. Andrew flew Avro 41, as did Ldg. Snn. Bateman.

Thursday was a very busy day. Comdr. Samson with Lieut. Clarke-Hall as passenger left for Farnborough on S3. Capt. Courtney was instructing on No. 2. Lieut. Davis flew Sopwith 27. Sub-Lieut. Marix also flew the Sopwith. Lieut. Collett flew well on S65. Capt. Kilburn was on S65. Telegraphist Sparks with Sub-Lieut. Peirse were on the "wireless" machine S64. P.O. Andrews flew Avro 41. Eng.-Lieut. Briggs made many flights on the Blériot 39. On Friday Capt. Courtney was instructing on No. 2. Later Lieut. Osmond was out on No. 2. Comdr. Samson returned from Farnborough with Lieut. Clarke-Hall on No. 3. On Saturday Capt. Courtney was instructing on No. 2.

The pilots during the week were: Comdr. Samson, R.N., Lieuts. Clarke-Hall, Davis, Ireland, Osmond, and Eng.-Lieut. Briggs, R.N. Pymr. Finch-Noyes, R.N., Capt. Courtney and

Kilburn, R.M.L.I., Lieut. Collett, R.M.A., Sub-Lieuts. Marix, Peirse, Young and Lyttleton, R.N.R. Telegraphist Sparks, Ldg. Snn. Bateman, Petty Officer Andrews, R.N.

MILITARY.

The following communiqué has been received:

Royal Flying Corps (Military Wing).—Diary of work for week ending January 17th, 1914:—

Flying Depot (S. Farnborough).—Repair and experimental work was carried on as usual.

No. 2 Squadron (Montrose).—Three machines were taken to the new aerodrome and the work of transferring the sheds was continued by the squadron.

No. 3 Squadron (Netheravon).—Officer and N.C.O. pilots were out frequently during the week.

No. 4 Squadron (Netheravon).—The squadron pilots of all three flights were out daily, and some reconnaissance work was carried out.

No. 5 Squadron (S. Farnborough).—The pilots of A and B flights carried out a number of instructional flights. During the week repair work and overhauling were continued.

War Office, January 21st, 1914.

Squadron 2 at Montrose are somewhat pleased with the decision of the Royal Aero Club in awarding the Britannia Trophy to Capt. Longcroft. It is especially gratifying to the mechanics who spent so much time and pains in fitting the machine up for its long flight. At the same time, they much regret Capt. Becke's ill-luck in his third attempt at the record. He left the Broomfield Aerodrome after 8 on Friday morning, and went off in great style, flying well until he crossed the Border, when his engine began to give trouble. He was forced to descend at 12.45 at Ripon, near York, where he made a successful landing. So ended his third attempt. Engine trouble has dogged him always, and one feels sure that with a better engine he would have been successful.

There has been much flying during the week at Montrose. On Monday and Tuesday flights in B.E. machines were mostly local, and on Wednesday Capt. Becke flew to St. Andrews with Lieut. Empson as passengers. Capt. Barnby and Major Gordon, R.M.L.I., arrived at the Dysart Aerodrome on Wednesday on Short biplane 42, converted from a seaplane, and flew from there to the Broomfield Aerodrome next day. On Thursday, Lieuts. Corballis and Empson also flew B.E. machines that day. Capt. Becke started out on B.E. 230 for another trial at a record next morning, but came down near York. Local flights were also made by various officers.

Rumour has it that two new Squadrons of the Royal Flying Corps (Military Wing) are shortly to be formed. One may be stationed in Yorkshire, and the other will probably go to Ireland, either to Limerick or the Curragh. Capt. Becke, now of Squadron 2 at Montrose, is most probably to take command of the first of these at an early date, and his promotion will be welcomed by all, for his good service as a soldier as well as his ability as a flier entitle him to distinction. Thus at last is the 1912 programme nearing fulfilment.

FRANCE.

Writing further in "L'Aero," M. d'Aubigny suggests some remedies for the present evil state of the French flying corps. His first remedy is the absolute autonomy of the aviation service, and he quotes Sénateur Raymond in support of his argument. By this he does not mean that the aviation service should be a separate third service, as certain people in this country are never tired of advocating, but that it should be a separate arm in which officers can make a life career instead of being constituted of a personnel which other arms of the Service make over to it, or rather lend it for a period, so that a flying officer is obliged to give up aviation just when his experience is the most valuable. He also advocates that promotion should be given quite as much for skill and bravery as an aviator as for administrative ability or for being a "good drill." Here one might perhaps interpolate a remark that the very finest fliers would possibly make the worst possible administrators. He also says that aviators should be commanded by officers who have distinguished themselves in aviation.

M. d'Aubigny also says that soldiers holding aviators' certificates should go straight into the aeronautic service without spending five or six months in a regiment, that young officers

holding certificates should not spend two years in a useless command in another arm, and that sous-officiers and officer-aviators who have passed their tests should not be sent back to their regiments after two years' flying. Some of this reads very like a civilian's ideas, for in his enthusiasm M. d'Aubigny apparently forgets that the personnel of the flying corps must be soldiers first and fliers afterwards, and not an undisciplined crowd of aerial bashi-bazouks. M. d'Aubigny points out that continuous recruiting must be assured. He says that the officer class cannot be asked to furnish the whole flying personnel, and brings forward another point—namely, that the officer-aviator does not care about carrying a staff officer as observer, for he holds that he is not a taxi driver, and that he is perfectly capable of observing everything while flying himself, and that, anyhow, he is not going to take orders from a comrade who knows nothing about the necessities of flying. According to M. d'Aubigny, the two-seaters intended for staff officers and for fortified places ought to be piloted by soldiers, corporals and sous-officiers, or, at any rate, by civilian aviators formed into a kind of aerial militia.

The Prince de Nissole, a pilot-aviator of long standing, and a grandson of the great Napoleon, disputes various figures recently published by M. Painlevé as to the superiority of France over other nations in aviation. He points out that, although German machines are heavier and generally slower than the French, they are better suited to their required ends, and in referring to the number of accidents which occur in Germany in spite of this, he writes: "It is because the heavy and thick Teuton is refractory to aviation and arrives difficultly at becoming a good aviator." The Prince points out that he is constantly receiving letters from young men who are qualified aviators but have had to give up flying for lack of money, and he recommends that the French army should put a certain number of machines at the disposal of such young men so that they may form a volunteer reserve for the French flying corps, and make up the numbers which, as has been shown by M. Girod and M. d'Aubigny, are so badly required.

French naval aviation is coming in for criticism. It is said that the mother-ship "Foudre" is an out-of-date cruiser which has served in turn as a naval workshop and as a torpedo transport, and that now she is simply a hulk carrying sheds in which three aeroplanes can be squeezed with difficulty, and has a landing platform fixed over her bows. She provides a certain amount of practice for the naval officers, but is of little real value, and resembles the late lamented "Hermes."

On the other hand, the air station at San-Raphael is well chosen, as flying was carried out on 27 days during December. The sheds there contain five machines, which are well looked after, and have done some respectable flying. It is said that in two or three weeks there will be 13 machines at San-Raphael, and the number will be raised to 16 as soon as possible. Fourteen naval officers are under instruction as pilots, and the total personnel of the centre is 65 men, which is shortly to be raised to 100. Workshops are being erected for repairs.

Two Bréguet biplanes are to be delivered almost immediately to the air station at San-Raphael. One of these is the machine with the central float and 200-h.p. Salmson engine which performed well at Deauville. It is to be piloted by Naval-Lieut. Dutertre, commanding the station. The other has catamaran floats and a 130-h.p. Salmson engine. It is to be piloted by Naval-Lieut. Winter.

M. Rougier, piloting a Voisin biplane (Le Rhone motor) for the army, flew on the 23rd from Paris to Mourmelon, making the voyage in 77 minutes, in spite of the terrible cold.

The airship "Capitaine Ferber" was out on the 23rd and made a long voyage over the country round Reims before returning to her shed at Mourmelon.

The Clément-Bayard Airship VI left its shed at La Motte-Breuil on the 24th at mid-day and made a flight of 2 hrs. 45 mins. round Compiègne, having on board nine persons, including the pilot, Lieut. Hennequin.

Tunis.

On the 20th, in honour of the presentation of decorations to those in the Tunisian Army of Occupation who had won them. General Nistor, commanding this army, held a review in which six Farman biplanes (Gnome engines) took part, and afterwards manoeuvred over the city.

GERMANY.

The rules for the Prince Henry Circuit, 1914, have now been passed, and show how aviation is encouraged in Germany. The event is open to civilian and military pilots with machines of purely German make; the motor may, however, be of foreign manufacture. A passenger is compulsory, and must be an officer, owing to the fortresses passed on the way. All machines not owned by the military have to pass altitude and climbing tests, though this restriction is keenly felt by makers and pilots of almost international repute.

The event takes place from May 17th to 25th, and is divided into four sections:—

(a) Darmstadt-Frankfort, about 800 kms., to be done from May 17th until May 19th, 8.30 p.m. Stage 1, start at Darmstadt, Mannheim, Pforzheim, Strassburg, Speyer, Mannheim, Worms, Frankfort. A landing has to be made here, but the time spent is not limited. Stage 2, Frankfort-Wiesbaden, Coblenz, Cologne, Frankfort, 375 kms.

(b) Frankfort-Hamburg, about 1,000 kms., to be done from May 20th to May 22nd, 8.30 p.m. Stage 1, Frankfort, Marburg, Cassel, Braunschweig, Hamburg, 440 kms. (landing). Stage 2, Hamburg, Hanover, Minden, Herford, Muenster, Osnabrueck, Bremen, Hamburg, 565 kms.

(c) Strategic test on May 23rd between Hamburg, Muenster, and Cologne, 400 kms.

(d) Tactical flight near Cologne on May 25th.

The prizes total 56,000 marks, 20,000 of which goes to the aviator with the shortest aggregate time; the second receives 10,000 marks; the third, 8,000; fourth, 7,000; fifth, 6,000; and sixth, 5,000 marks. Other prizes, totalling 15,000 marks, will be divided among the civilian pilots, the number of stages covered determining the several shares.

Trophies, presented by the Emperor and Prince Henry, will be competed for by two separate groups, military and civilian pilots, the Emperor's prize going to the one with the highest number of competitors finishing the circuit and military flights; Prince Henry's cup to the less successful division. The individual possession of both trophies will be determined by the shortest total time and non-change of passenger throughout the entire contest. Forty entries are expected, twenty military and twenty civilian.—B.

[Can one imagine 40 entries for any British competition?—Ed.]

On January 19th the new German military dirigible M. IV left Tegel and made a test flight over Berlin for 1½ hours.

L. III, which is to replace the L.I which was lost in the North Sea, will be finished at Friedrichshafen about April 15th.

At München, on the 21st, the aviator Schweiser, a non-commissioned officer of the German army, was killed by a fall from a height of 300 feet.

The dirigible "Sachsen," hired by the Minister of Marine, has recently been flying at Cuxhafen, this being the first time that that port has seen a dirigible since the disaster to L.I. She reached the island of Heligoland on the 22nd and returned in the direction of the island of Sylt.

TURKEY.

It is reported from Constantinople that the Turkish Minister of War is organising an aeroplane race for Turkish officer-aviators from Constantinople to Jerusalem, the prizes being valued at £1,600.

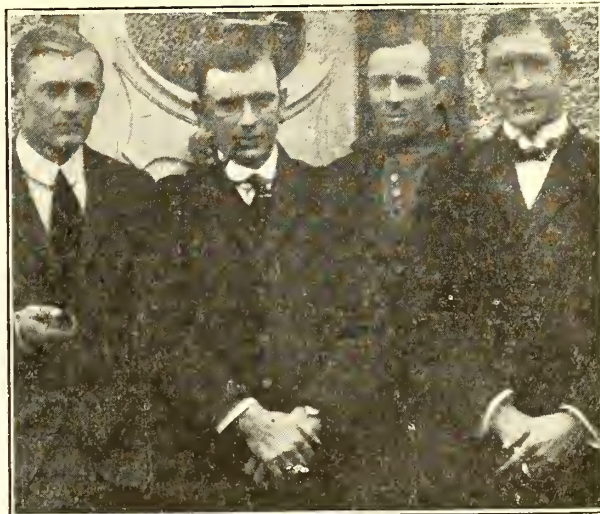
BRAZIL.

Some months ago it was remarked that possibly part of the standard tests for military machines might be for the pilot to loop the loop. It is therefore not without interest that M. Pequet, in passing a Morane monoplane (9-cylinder Le Rhone motor) through its tests for the Brazilian army, looped the loop five times on it before handing it over to the purchasers.

U.S.A.

Some statistics of Service aviation in the United States for the year 1913 (up to December 27th) are as follows:—Total number of flights, 3,271; total time in air, 714 hrs. 17 mins.; approximate mileage, 39,294; number of military aviators qualified, 14; altitude record, 10,050 feet (Lieut. Post); altitude with passenger, 7,800 feet (Lieut. Carberry); cross-country with passenger, 230 miles (Lieut. Milling, creating two new U.S. records); winner of Mackay trophy (Lieut. Milling).

The Signal Corps School is now situated at North Island,



Lieut. Cull, R.N., Lieut. Watkins, R.N.R., and Sub-Lieut. Smyth-Piggott, R.N., who all took their certificates on the same day at the Bristol School at Brooklands and who are all appointed to the Central Flying School. Their instructor, Mr. Merriam, is behind them.

San Diego, Ca. The courses include both practical and theoretical training, Dr. A. F. Zahm, Prof. W. J. Humphreys, Prof. W. F. Durand, and Mr. Orville Wright being among the lecturers.

On January 12th Lieut. J. Carberry flew from San Diego to Los Angeles, non-stop, taking a little over two hours to cover the 115 miles in a Curtiss Army biplane.

It is announced that the Navy is about to establish an aeronautical division.

FOREIGN NOTES.

France.

One of the latest "boudlers" is ex-sapper aviator Pequet, who did his first loop at Villacoublay on a Morane-Saulnier monoplane on Monday, 19th. M. Pequet will be remembered as flying at Brooklands in the days when the Humber Co. endeavoured to build Blériot type monoplanes.

One gathers that M. Moreau, the inventor of the so-called "stable" aeroplane in France, has been entertained at various banquets, and has been appointed to the Legion of Honour. The next step in his services to aviation is for him to build an aeroplane which has some pretence to being an effective flying machine.

On the 19th, Maurice Guillaux finished his voyage from Paris to Bordeaux, having been brought down at Châtelleraut the previous evening. The rest of the journey was accomplished in thick fog. M. Garros gave an exhibition of looping on the machine next day, and on the 22nd Guillaux flew it back towards Paris, but was brought down by darkness and lack of petrol at Ahlis, somewhat short of his destination, so he flew to Villacoublay next day. He had flown for 6½ hours in a temperature 12 degrees below zero (centigrade).

The entries for the competition of the Union for Security in Aeroplanes have now closed, and number 56. There are no British or German entries, but one finds among them such well-known names as Blériot, Caudron, Chevalier, Drzewiecki, Esnault-Pelterie, Commandant Félix, Lieut. Gouin, René Hanriot, Paul Schmitt and Curtiss, and there is one Austrian competitor, Herr Etrich.

Baron Empain has offered the French Ligue Nationale Aérienne a prize of 15,000 francs for a competition between Paris and Heliopolis. The L.N.A. already has 25,000 francs for the purpose of sign-posting the air-way from Paris to Constantinople via Vienna and Bucharest, 10,000 of this being from the Municipal Council of Paris, 10,000 from Prince Bobescu and 5,000 from the General Council of the Seine, and these amounts also may be put up for prizes.

On the 22nd, the Baroness Vaughan, themorganatic wife of the late King Leopold of Belgium, with one of her children, was starting for a flight with Maicon on his Caudron at Beau-

lieu when one of the float struts broke, and the machine collapsed onto the water. The crew were rescued by a motor-boat.

M. Maurice Galtier, on the occasion of the christening of his Caudron biplane on Thursday last, looped the loop at Chateaufort.

In the language of a French contemporary, "the loopists are indefatigable." On Thursday last M. Chanteloup performed at Le Crottoy on a Caudron-Gnome, and is said to have accomplished eleven loops with his head outside, in one string. At the same time, M. Poulet mounted on another biplane, executed a side loop, and landed *en vol plané*. M. Chanteloup, who witnessed this kind of looping for the first time, congratulated his comrade.

The "parasol" monoplane at the Morane school at Villacoublay has been fitted with a new monosoupape Gnome. The engine is "to the point." The lack of vibration is remarkable, and it functions perfectly at all altitudes.

M. Gilbert has been flying another "parasol," 60-h.p. le Rhone, and carries out all his usual acrobatic tricks upon it. He even attempted to loop the loop, "but the monoplane would not consent." Gilbert looped the loop on an ordinary Morane in four seconds (a record).

At the same aerodrome M. Gilbert put an "artillery" machine, fitted with a 9-cylinder le Rhone, through its official tests, during which it climbed to 500 metres (1,640 ft.) in 70 seconds, a record. The officers of the aviation centre at Villacoublay tried one of the parasols, and declared it to be "enchanting."

The first Italian pilot to loop the loop is Romolo Manisserro, who performed the feat at Buc on the 24th on a Blériot. Jean Oleslagers had already done so.

Comte Henri de la Vaulx, one of the most prominent persons in France in connection with airships, has severed his connection with the Zodiac firm.

M. Champel, who will be remembered as flying at Brooklands, had up to the end of 1913 carried 1,872 passengers, all of whom have left their signatures in his visitors' book. After all this, M. Champel has been forced to take a rest owing to hurting himself somewhat severely when getting out of a train.

The Blériot pilots Deroye and Bidot both looped the loop for the first time at Buc on January 19th.

Germany.

Germany's programme for 1914 contains the following events:—May 17th to 25th, Prince Henry Circuit with five meetings arranged by the Frankfurt, Muenster, Bremen, Mannheim and Hamburg clubs on their various grounds during the week; May 24th to 29th, Water Aeroplane Contest on Lake Constance; May 30th to June 6th, Three-cornered Flight Johannisthal, Leipzig, Dresden; June 14th to 21st, Eastern Circuit; June 14th to 21st, Meeting at Breslau (club event); June 20th to 28th, Water Aeroplane Contest, Scheldt-Rhine-Maas; July 12th to 19th, Gelsenkirchen Week; August 1st to 9th, Warnemuende Water-aeroplane Meeting; August 16th to 23rd, Dresden Week; September, date not settled, Northern Flight, Germany-Denmark-Norway; September 27th to October 4th, Autumn Meeting at Johannisthal and "Round about Berlin" Flight; October 10th and 11th, Leipzig Meeting; October 10th to 15th, South German Circuit.—B.

During 1913 at the aerodrome at Fühlsbüttel, near Hamburg, there have been during 1913, 1,047 flights which have taken place on 165 days in the year. The total duration was 245 hours. Sixteen brevets have been taken under the tutelage of Herr Krumsiek.

Prince Alexander von Bismarck, the grandson of the great Bismarck, has just passed for his aviator's certificate on a Fokker monoplane.

The authorities at Johannisthal have just published the following statistics for 1913, compared with those of the two previous years:—

Number of days on which flying occurred.—1911, 289; 1912, 317; 1913, 336.

Number of flights performed.—1911, 7,489; 1912, 17,651; 1913, 36,817.

Total duration of flights.—1911 821 hrs. 41 mins.; 1912, 1,966 hrs. 3 mins.; 1913, 4,096 hrs. 48 mins.

Number of aviators who have taken certificates.—1911, 47; 1912, 98; 1913, 172.

Aviators who have made long flights.—1911, 45; 1912, 84; 1913, 212.

Distance covered in kilometres.—1911, 57,522; 1912, 157,284; 1913, 327,760.

Number of flights which have caused accidents.—1911, 119; 1912, 165; 1913, 320.

Percentage of ditto.—1911, 0.84 per cent.; 1912, 0.61 per cent.; 1913, 0.31 per cent.

Number of fatal accidents.—1911, 5; 1912, 5; 1913, 12.

Percentage of ditto.—1911, 0.066 per cent.; 1912, 0.028 per cent.; 1913, 0.032 per cent.

The figures are exceedingly interesting and show an enormous increase in the duration of flights, although strangely enough the number of aviators who passed their brevets there is not so great as one would expect. The percentage of accidents seems high, but it must be remembered that the Johannisthal aerodrome exists very largely for the testing of experimental machines by small makers, which in Germany are usually very badly made. The big firms have, as a rule, their own test grounds.

Italy.

It is reported that Signor Enea Bossi has built a very light biplane of great surface with the idea of attacking the Italian duration record. It is fitted with an 80-h.p. L.U.C.T. motor, which is generally supposed to be the best of the Italian rotary motors. The most interesting thing about the machine is that Sig. Bossi has fitted a propeller of variable pitch which permits the speed to be varied according to whether the machine is heavily or lightly loaded, so that it will be possible always to run the engine and machine at their most efficient speeds.

It is reported from Italy that the displacement of each of the three Forlanini airships for the British Navy is 12 tons, or $3\frac{1}{2}$ times as great as that of the Parseval bought last year. The length of the Forlanini is 72 metres (230 ft.), the diameter 18 metres (59 ft.). The gas envelope is divided into 14 compartments. This internal envelope which holds the gas is surrounded by an outer envelope, so that there is a blanket of air between the two.

Mr. Curtiss, accompanied by the Italian constructor Signor Enea Bossi, has left the Riviera for Venice accompanied by Mr. Cooper, to demonstrate the latest type of Curtiss flying boat to the Italian Navy. It is understood that Mr. Cooper will experiment with the Sperry stabiliser, and catapult launching on the American system from a cruiser is to be tried.

Belgium.

The Aero Club of Belgium is making arrangements for a competition for waterplanes to take place between June 20th and 28th. Prizes will be valued at £6,000. The course is from Brussels to Niemen, Niemen to Dusseldorf, Dusseldorf to Liège, Liège to the French frontier and back, Liège to Rotterdam, Rotterdam to Brussels, following the course of the Scheldt, Meuse, and Rhine.

Switzerland.

The Swiss, ever to the fore where sound commercial ideas are concerned, have formed a Swiss union of aviators with the intention of defending the interests of aviation and of persons occupying themselves with aviation in a professional way.

Egypt.

On January 20th M. Marc Pourpe left the Atbara River and flew to Abou-Hamed. On the 21st he left Abou-Hamed at 9.50 a.m. and reached his next stopping place at mid-day.

On the 18th inst. a new Blériot, 50-h.p. Gnome, destined for Mr. Oswald Watt, who is going to fly it in Egypt, was passed through its tests at the aerodrome at Buc in the presence of M. Pierre Prier, formerly of the Blériot Company, and of Mr. Samuel S. Pierce.

U. S. A.

Chas. K. Hamilton, the famous American aviator, died a natural death, much to everybody's surprise, on January 23rd. He was generally regarded as being, next to Lincoln Beachy, the most reckless and fool-hardy aviator in the States.

The "Aerial Ferry" of Benoist flying boats between St. Petersburg and Tampa (Florida) has proved so successful that two new machines will be attached to the service.

On January 10th at Oakland (Cal.), Mr. Lincoln Beachy flying very low on his Curtiss looping machine was racing Mr. Barney Oldfield in a car. Having to effect a sudden landing he swerved to avoid the car, broke up his machine, and—as the Italians say—did seven days' damage to himself.

The Death of Mr. George Lee Temple.

It is surely the irony of fate that after all the risks he has run in the last year, little George Lee Temple should have gone out in a simple accident such as that which caused his death on Sunday. Though by nature a shy and nervous boy, Temple was full of ambition to distinguish himself, and his will power was apparently illimitable, consequently he ordered himself to do things which otherwise he would not have done. I remember him saying to me not very long ago: "Of course, one hates advertising oneself this way, but one has to do it to get on," and a few days afterwards he did his super-vertical dive, which won him the distinction of being the first British pilot to fly upside down.

He was certainly one of the bravest youngsters I have met, for he knew perfectly well the danger he was running in flying, as he did, on machines which were never quite new, or in the perfect condition of those belonging to the crack fliers, yet he was quite a useful mechanic and he did everything possible to strengthen up his machines, with the result that they never let him down. Also, he was not like some fliers who are possessed by a conviction that they can never have an accident, and are reckless on the strength of it. He knew his risks, he took them like a sportsman, with a definite end in view, and he did his best to guard against accidents. That is bravery and not fool-hardiness.

Temple was never a pretty flier, for he was too abrupt in his handling of his machine, but he always knew what he wanted to do, and was generally fairly successful in doing it. If he had been spared he would have improved as a flier, and would very probably in time have become a useful pilot-Constructor with some big firm, for, young as he was, he had excellent mechanical ideas, and was by no means a bad hand at putting them into practice.

He was rather respected than merely popular among other aviators, and I do not think he ever sought popularity, but everyone admired his pluck and energy. Those who know him best recognised his real worth, and his determination to help the progress of aviation, and liked him accordingly. His father, formerly an officer of the Royal Navy, and a brother of Sir Richard Temple, helped him in every possible way, and took the keenest interest and pride in his boy's doings. To this gentleman, whose career in his Sovereign's service has earned him considerable distinction, we all offer our heartfelt

sympathy in having the evening of his days clouded by so great a loss. He has at any rate the consolation that the lad died doing his best at the game he loved.

George Lee Temple was born at Acton in 1892. He taught himself to fly on an old Blériot at Hendon in 1912, and took his certificate in February of 1913. He had made many good flights, especially one from Paris to London in bad weather, and took part in the Hendon-Brighton and back race.

The actual cause of the accident can never be certain, but in the opinion of some of the best pilots it appears as if Temple fainted and fell onto his control lever. He had been ill for a week previously, and on Saturday had his head in a bandage owing to an affection of the ear. At any rate, on Sunday, after flying his Blériot somewhat erratically, he went off down wind towards the railway bank, and when nearing No. 3 pylon switched off as if to descend tail to wind, a thing he would never do under normal conditions. The machine did not dive suddenly, but its descent became progressively steeper until finally the machine turned right over and landed on its back, which is what it would tend to do, for it was known to be nose heavy. Temple's head and shoulder struck the ground and his neck and one arm were broken.

His best friend, Mr. J. L. Hall, tells me that Temple was not indulging in trick flying that day. The wind was very treacherous, and he himself had had a bad drop while flying his Avro over the same part of the ground half an hour earlier, so he had warned Temple to keep clear of the spot, and presumably he must have got there in spite of himself.

The lesson of the accident seems to be that in all machines a safety-bar should be fitted across the fuselage which, as suggested months ago, would pull the elevator up if the pilot fell forward onto it. Also, this seems to be an increased argument in favour of a machine which is inherently stable and cannot, if left alone, reach a vertical dive. In some papers one reads that a gust from behind caught the tail of the machine and blew it over, so it may be well to point out that no gust of recorded dimensions could ever overtake an aeroplane. Allowing that the speed of the machine was only forty miles an hour, flying with a twenty-mile wind it would be doing sixty over the ground, so that the gust would have to exceed sixty to overtake it.—C. G. G.

The Death of Mr. Lancelot Gipps.

It is with great regret that one records the death of Mr. Lancelot Gipps, at Lark Hill, on Monday last, January 27th. Mr. Gipps was flying with Mr. F. Warren Merriam on a Bristol side-by-side monoplane, which had dual controls. As they were making a turn about 50 yards out in front of the sheds, the machine side-slipped and fell from a height of only 30 to 50 feet. Mr. Gipps injured his head and died from hæmorrhage of the brain at Bulford Hospital. Mr. Merriam

was badly shaken, but not seriously injured. Mr. Gipps was born in London on May 29th, 1893, and took his pilot's certificate, No. 513, on June 13th, 1913, at Lark Hill, on a Bristol biplane.

He was undergoing a further course at the Bristol School in order to learn to fly tractor machines. He had previously been living at Farnborough, but was not connected with the Royal Flying Corps or the Royal Aircraft Factory.

The Hague Convention and Aviation.

Mr. Stanley J. Rubinstein, the well-known solicitor of Staple Inn, writes:—"With reference to the point raised by you recently as to whether Felixstowe and other seaside resorts could be bombarded because of the presence of hydro-aeroplane hangars on the beach, I have looked up the various Conventions signed at Geneva and The Hague, and find the information you require contained in one of the Hague Conventions of 1907—and I do not think I can do better than send you an extract from the same:—

"Convention respecting bombardment by naval forces in time of war:—

"Chapter I., Art. 1.—The bombardment by naval forces of undefended ports, towns, villages, dwellings, or buildings is forbidden.

"Art. 2.—Military works, military or naval establishments, depots of arms or war material, workshops, or plant which could be utilised for the needs of the hostile fleet or army and ships of war in the harbour, are not, however, included

in this prohibition. The commander of a naval force may destroy them with artillery, after a summons followed by a reasonable interval of time, if all other means are impossible, and when the local authorities have not themselves destroyed them within the time fixed. . . . the commander shall take all due measures in order that the town may suffer as little harm as possible."

"I do not think there can be any doubt that hydro-aeroplanes and their hangars would be held to come within this category."

To Designers and Constructors.

Lieut.-Col. Sykes' lecture to the Aeronautical Society next Wednesday is perhaps the most important of the year from the point of view of all interested in aerial defence, and it is to be hoped that designers and constructors will make a point of being present so that they may learn something of the problems they have to tackle if their machines are to be of use to the Royal Flying Corps.

The Stability of Aeroplanes.

At the Royal United Service Institution on January 21st a highly interesting and instructive paper on "The Stability of Aeroplanes," illustrated by experiments with model gliders, was read by Mr. Leonard Bairdow, A.R.C.Sc. The following quotations from his paper give the main points of his argument:—

"The aeroplane is the only man-carrying apparatus which must be in rapid motion before it can fulfil its function as a weight carrier. In the first place, then, it is obviously necessary to maintain the speed of flight, but this is not a sufficient condition of safety. An aeroplane may fail in other ways than by failing to maintain its speed, for it may roll over, turn tail foremost, or pitch completely over. Various combinations of these motions may occur, and the nature of the failure to maintain a steady motion then becomes somewhat complicated.

"It may be said that the controls were imperfect before the Wright Brothers introduced their system of wing-warping in conjunction with rudder action, and that this deficiency in control would be sufficient to account for the partial failures of the early aviators. Although this objection may hold good, it will surely not be contended that a machine which is totally dependent on the skill of the pilot for its safety is as good as one which can right itself without the pilot's assistance.

"The following definition of a stable aeroplane is proposed as employing the above expression of opinion:—

"A stable aeroplane may be defined as one which, from any position in the air into which it may have got either as the result of gusts or the pilot's use of the controls, shall recover its correct flying position and speed when the pilot leaves the machine to choose its own course, with fixed or free controls, according to the character of the stability."

"Sufficient height above the ground is presumed to allow an aeroplane to reach a steady flying state if it is able to do so. The more rapidly the aeroplane recovers its flying position the more stable it may be said to be.

"An aeroplane is said to be 'inherently stable' if, when the controls are fixed in their normal flying position whilst the aeroplane is in any position and flying at any speed, the result is to bring the machine to its normal flying position and speed. 'Automatic stability' should be used only to describe stability obtained by a mechanical device which operates the controls when the aeroplane is not in its correct flying attitude and so rights the flying machine.

"Only in respect of certain effects of side winds, etc., on the forces due to the propeller does the problem of the glider differ from that of the stability of a power-driven aeroplane and the differences are differences of detail and not of principle."

The model flights which were then attempted, mostly with success, were: (a) Simple launching in approximately the correct attitude and at the proper speed, (b) Dropping with the model right side up, (c) Dropping with the model inverted, (d) Dropping with the wings vertical.

Mr. Bairdow said: "The manufacture of the models is based on certain mathematical equations in which nothing is new but their application to an aeroplane. Laplace used similar equations to examine the stability of the solar system and Lord Kelvin applied them to the study of gyroscopes. The method was finally standardised by Routh, the famous Cambridge coach, and was first applied to aeroplanes by Professor Bryan in his book, 'Stability in Aviation.' Another mathematical method of attacking the problem of aeroplane stability has been developed by Mr. Lanchester in his books on 'Aerial Flight,' and was the first method successfully used to calculate the conditions of stability of an aeroplane. The method bears little superficial resemblance to that used by Bryan, but since there is only one set of laws of motion it must necessarily happen that if correct both methods will lead to the same results. This is found to be actually the case, and to both authors the speaker is greatly indebted for the assistance obtained from their books.

"The model which has been flown as an indication of what may be expected of an inherently stable machine has had the advantage of flying in comparatively still air. The objection is often raised that the calculations presume still air and

neglect the existence of gusts. The objection is plausible and yet quite untenable when examined carefully. For instance, the mathematics includes a term for the effects of side-slipping of the aeroplane. Exactly the same term applies if the aeroplane continues on its course but receives a gust from the side. A head gust and an upward wind are similarly contemplated by the mathematics.

"Given sufficient head room, an inherently stable aeroplane will weather any gust it may receive. In doing this, it will roll, pitch, change its course and speed, etc., so that any disturbance will die out in a time of, say, 20 to 30 seconds. Successive gusts simply add their effects.

"A stable machine, whether the stability be inherent or automatic, must turn into the relative wind more and more rapidly as the stability is increased and therefore a very stable machine will be tossed about in a wind more than a less stable machine. If the stability is too great the result will be discomfort to the pilot.

"A distinction is here of importance; existing machines turn into the relative wind with great rapidity. The slow motions tending to restore the machine to its correct attitude arise from the inclinations of the machine relative to the earth, and it appears probable that these slow motions may be made quicker without at the same time increasing the rapidity of the already existing rapid motions. In other words it appears that the stability of modern aeroplanes might be greatly increased without introducing any further discomfort to the aviator. It follows from these remarks that a useful automatic stability device should be gravitv controlled, either directly or indirectly. Any device which does not satisfy this condition can only be expected to regulate the motion of the aeroplane relative to the air, and as this is not in itself a difficult stability problem, its use will be confined to securing greater comfort for pilot and passengers.

"Enough has now been said to indicate that the mathematical method is very comprehensive and can include within its bounds almost all the stability problems which confront the designer of an aeroplane."

Mr. Bairdow then showed experimentally some of the consequences of failure to obtain stability, and then drew attention to those features of an aeroplane which are of primary importance in their effects on its stability.

He continued:—"Catastrophic instability is concerned particularly with the effects on an aeroplane of upward or downward gusts. In certain cases the attitude of the machine in steady flight may be completely altered by a sudden vertical air-current. The new flight position is usually upside down and should it occur without the pilot being strapped to his seat he would inevitably be thrown out. If strapped in, the pilot may recover his alternative position of steady flight by the use of the controls. Catastrophic instability is not very difficult to avoid, the sole condition to be satisfied being, 'that for any one setting of the elevator there shall not be more than one position for which the pitching moment about the centre of gravity shall be zero.'

"The rapid oscillations of an aeroplane depend almost entirely on the forces and couples arising from an inclination of the relative wind to the direction of flight and are scarcely affected by the earth's attraction. The rapid oscillations almost always die down. In certain cases the rapid oscillations change into a dead-beat motion which cannot give rise to a dangerous motion of the aeroplane.

"For actual aeroplanes the phugoid oscillations are comparatively slow, the period being about twenty seconds. The aeroplane is stable if the amplitude of any oscillation decreases, and this effect can always be produced by using a sufficiently large tail plane and elevator. If the moment of inertia of the aeroplane is large and the tail not quite great enough the phugoid oscillation increases its amplitude and the aeroplane will rise and fall in a wave of increasing height, ultimately striking the ground awkwardly. It has been contended in France that this motion is so slow that the pilot is not troubled by it, but it cannot be too strongly insisted upon that phugoid instability is undesirable as throwing a quite needless strain upon the pilot.

"Longitudinal stability is not difficult to secure and is generally identified with the principle of the upward Vee. Only one organ, the tail plane, need be altered to produce stability, and the principle of the upward Vee is expressed by the statement that (independently of their relative size) the forward plane shall be more heavily loaded per square foot than the rear plane.

"Inherent longitudinal stability tends to maintenance of speed, and a stable machine must settle down to a definite speed for each setting of the elevator. Shutting off the engine without adjustment of controls has little effect on the steady speed, the additional power being obtained from a fall under the influence of gravity. The change from horizontal to gliding flight with the engine stopped usually only involves a speed variation of about 1 per cent. when the resulting phugoid has been damped out.

"Lateral stability appears to be more difficult to obtain than longitudinal stability and the disturbed motions are of a different character. One of the motions is essentially dead-beat in any heavier than air machine. The salient features can, however, be easily understood without such assistance. If we imagine that this model of an aeroplane is given a rolling motion when in flight by a quick outward and return motion of a miniature warp lever, then the subsequent motion will be as follows:—The right wing is rising and consequently the air strikes it at a reduced angle of incidence and the lift on it is reduced. Conversely the lift on the left and downward moving wing is increased and the combined effect of the two forces is to introduce a powerful couple tending to stop the rolling. The rolling ceases with enormous rapidity and is practically over in a fraction of a second. The rolling motion, however, simply stops and the couple described does not restore the machine to an even keel. This restoration takes place in consequence of secondary actions introduced by side-slipping under the influence of gravity.

"Spiral instability can be illustrated by a model and is one of the motions which may be dead-beat. Unlike the rolling described above, the disturbance may increase progressively instead of decreasing and is dependent on and controlled by the earth's attraction. Spiral instability arises from the use of too large a rudder, and it is the proportioning of the rudder and vertical fin system generally which presents the most difficult of stability problems. If the machine is unstable, then on taking a turn to the right, side-slipping occurs inwards to the right after a preliminary outward movement under the action of centrifugal force. The machine then overbanks and the rate of turning is increased. This goes on with increasing rapidity unless checked by the pilot. There exists a limit to the rate at which an aeroplane may increase its banking, but as this only means a period of fifteen seconds before the machine becomes uncontrollable, the limit is higher than practical considerations would show to be desirable.

"The lateral oscillations of an aeroplane are of peculiar importance as it follows from a study of them that 'the most stable aeroplane is one which has for one of its types of lateral motion an oscillation.' The statement does not go so far as to say that a machine which oscillates is stable; it does, however mean that a machine which does not oscillate has one of its stability factors small.

"The oscillation becomes unstable when the rudder is not large enough, and thus a limit is obtained opposite to that of spiral instability which arises from the use of too large a rudder. Starting with a stable aeroplane and reducing the rudder more and more has the effect of making the oscillations more and more apparent until finally they tend to increase in size from one wave to the next. The model side-slips and turns, keeping on an averagely straight course, but with increased banking until it either loses speed and falls or overturns. With sufficient room beneath it an aeroplane would recover, but only to begin again an increasing oscillation.

"If the rudder is still further reduced, the front fin becomes the larger and the unstable oscillation gives place to an instability of a very different kind. The model spins round about a vertical axis with great rapidity, loses all its forward speed and falls. From the inversion arising from this type of instability it is unlikely that a model would ever recover, no matter what the height of fall. Other types of lateral instability are known, but so far as modern machines are concerned the more important types have now been described.

"The vertical fin system on which lateral stability depends is provided by the side surface of the body, the rudder and the dihedral angle or equivalent vertical fin above the centre of gravity. If a machine is spirally unstable the instability may be removed by deepening the body forward of the centre of gravity, or by increasing the dihedral angle. If the unstable oscillation appears the rudder area should be increased. All full-scale experiments should, however, be carried out tentatively, as the inter-relation between the effect of the rudder and the dihedral angle, in order to produce stability, are not very simple. An aeroplane may be made unstable by increasing the dihedral angle unless the other factors in the stability equations are correspondingly changed. If carried out with the necessary care (and there is no obvious royal road to success) it is quite certain that any aeroplane whatever which is capable of lifting its load, with some reserve of engine power, can be made laterally stable by attention to this vertical fin system. The details of the resulting motion will depend on the particular way in which the aeroplane is made, but stability in itself does not impose conditions so rigorous that a designer has not ample room for the exercise of his ingenuity for the improvement of efficiency, comfort, etc.

"No attempt has been made to discuss the relative merits or demerits of 'inherent' as against 'automatic' stability. The reasons for this are twofold. In the first place automatic stability is not yet sufficiently developed either practically or theoretically; and, secondly, there appears to be room for the development of both systems for use in the same aeroplane but for producing complementary effects. The only reason for the greater attention given to 'inherent' stability this evening is that the subject is better known to the author, and it appears to him that the mathematical analysis offers suggestions for immediate improvement in the stability of modern aeroplanes."

THE DISCUSSION.

Mr. Pearson remarked that in most German machines stability was obtained by swept back wings and "washed-out" plane cambers. Experiments had been tried with wash-outs up to nine degrees. With a longitudinal V if the weights were far apart the pitching was slower.

Mr. Harris Booth disagreed that propeller torque had little effect. The back torque from the engine was a serious matter. It involved the whole question of stability. If a Blériot was inherently stable when gliding, the pilot would have to fly with his warp hard over. The best way out was to have two propellers, or one could use sliding weight to balance the torque, which was undesirable. Professor Bryan's book dealt with straight-line flights only, and he hoped someone would work out the mathematics of curvilinear flight. He recommended launching models from an endless string on a kite.

Mr. T. W. K. Clarke said that inertia could be used in automatic stability devices. The weighted bar bell and gyroscopes might be usefully employed.

Mr. Handley Page showed how a stable model could make the extreme phugoid oscillation (namely, loop the loop) and recover its normal flight path.

Major Brooke-Popham, R.F.C., said that the type of stability required was that which recovered the machine in the least possible vertical depth. He was afraid that machines which took a 50-foot drop to recover would be useless. What he wanted was a machine which would bring itself on to a level keel within 30 feet. One could not do without personal control altogether.

Mr. A. R. Low was glad that Professor Bryan's work had been vindicated by the lecturer, and hoped that in future the adverse criticism of the National Physical Laboratory and of the Royal Aircraft Factory by a section of the technical press would cease.

Mr. Busk doubted if any aeroplane could be made to right itself in the distance Major Brooke-Popham suggests. It was necessary that controls should always be powerful. Many pilots objected to inherent stability purely from the love of having difficult machines to fly. Others objected because they had never tried it. Partially stable machines were easier to fly. Propeller torque made the characteristics of the aeroplane quite different when turning to the right or to the left. There was no other way of giving an aeroplane a sense of verticality than by gravity unless someone invented an artificial way of seeing the horizon. Automatic stability should operate quicker than inherent stability.

Mr. O'Görman asked the lecturer to scale up from his models the speed of fall, so as to indicate the time taken for full-sized machines to perform evolutions similar to those of the gliders. Stable machines would be very difficult to land across the wind. He said that one often heard people remark on the instability of a machine which was moving about in a wind, when it was really very stable, and that one needed much study to be able to tell whether it was stable or not.

Mr. Melford Jones spoke of a pilot who objected to inherent stability chiefly because of the difficulty of holding a course in a wind, which needed mental effort. This pilot preferred an unstable machine which he controlled instinctively, while his mind was free to watch his maps. Mr. Jones thought that the stability in a machine should be variable at the requirement of the pilots, so that it would be stable high up and controllable low down. Otherwise slightly stable neutrality was the best design.

The lecturer, in replying, said that he still thought propeller torque was insignificant, as in an ordinary machine it only amounted to about 200 ft. lbs., whereas the warp generally amounted to something like 2,000 ft. lbs. He had no hope of eliminating the rolling and pitching of the machine. Machines that were too stable would be hopelessly unmanageable on approaching the ground. What was wanted was a little inherent stability which would over-ride ordinary gusts. He thought an automatic stability gear could be added with advantage, but would have to be switched off in high winds and on landing. If pilots would make up their minds to roll, they could have stable machines.

Sir Alfred Keogh, who presided, referred to the lecturer's ability in imparting technical knowledge in simple language.

Some Opinions on Inherent Stability.

A designer employed by one of our biggest firms writes:—"I do not think there is justification for the use of such planes as 'H. P.' and Dunne owing to their low efficiency. Negative wing tips must be an extra drag. Also all pendulum devices are no good, as any naval architect will tell you, but I hope to see stabilisers on the principle of the anti-rolling tanks on the 'Cunarders.' Gyroscopes are impracticable, as you know. What I object to is the daily press gassing about fool-proof flying for the man in the street. I hear that the 50 Blériot is never controlled by warping. Is that so?"

Mr. Louis Noel writes:—"In the last edition of *AEROPLANE* you wrote a most interesting article; your arguments are very sound with regard to inherent stability aeroplanes, but, in the case of automatic aeroplanes, as far as I know them, in spite of your faith in so-called to-day's aero-stable, I do not agree with you. I frankly think the Blériot, Maurice Farman, Henry Farman, Caudron, etc., are much safer.

"Certainly I admire Commandant Félix's pluck—to lock the controls and walk out and tinker with the engine, but that does not show automatic stability; on the contrary, that was a demonstration of a well-balanced 'bus, that is all. In the 'char-à-bancs' Carr and Chapman walked out on several occasions to the end of the planes, and many times they went from the passenger seats to see to the motor, and I never felt any abnormal pressure in either case on the controls; nevertheless, I would never dream of calling this big 'bus aero-stable.

"If Commandant Félix wanted to demonstrate the automatic stability of the Dunne machine he ought to have left the control unlocked; and I am very doubtful if he could do the same thing in that case! I think the 'fool-proof' 'bus, as you call it, will be the 'bus whose sustentation will be always constant under each wing in any kind of bad weather conditions. So far, I think, we do not yet possess an aircraft of this kind."

Mr. Noel Vernham writes:—"I think you will agree that given reliability, and the possibility of the pilot assuming control by throwing the mechanism out of action if desired, there is no ground for objection to a mechanical stabiliser. Inherent stability requires space for its efficient action, as also do all stabilisers depending upon the attitude of the machine to bring them into play.

"In the case of a ship, special sheltered waters are arranged for 'landing' and should the water even then be too rough the vessel can wait out in the open until circumstances are more favourable. Apart from the difficulty of providing similar con-

veniences for aeroplanes, is it not obviously an advantage if the machine can land without leaving an even keel, the pilot being free to control the machine to the actual business of alighting unhampered by having to meet wind gusts? Certainly pendulum or gyroscopically attained stability does not permit of this, for they wait to act until the machine is moving and so get the disadvantage of inherent stability, i.e., rolling, and also prevent the pilot assuming control.

"The case with air vanes appears to be different. Take, for example, lateral stability; a small plane at either extremity of the main planes set at a small angle to make it self-supporting in flight would act as a 'feeler,' on the same principle as the string used by some pilots, and owing to its lightness would move very rapidly. It appears that the action could be quicker even than that of the pilot, the feelers being coupled to a small double-acting compressed-air cylinder, the piston of which simply moves slightly to right or left in the same manner as that in which a pilot moves the warp lever. Such a piece of mechanism takes life very easily and can, with care, be made perfectly reliable.

"The mechanism does not prevent the machine from banking naturally or by aid of the pilot, and I contend that a machine naturally stable, as, for example, the Dunne, would be safer and pleasanter to fly if fitted with some such apparatus, since it is just at the time when stabilising is most required (i.e., when near the ground), that these inherently stable machines are at their worst. Such mechanism is simple, and unlike all other types of stabilisers, might be a valuable fitment to inherently stable machines, and when machines get larger, doubtless the pilot will not be too keen on direct muscular control. The mechanism can be connected to the controls through the medium of a dog clutch under the control of the pilot, and it certainly appears that one might obtain a machine which could be left to itself (so far as air pressure fluctuations are concerned) on landing as well as when in full flight.

"Stability, whether mechanical or inherent, is bound to come presently. It has been found essential to stop the rolling when near the ground, and it is a fact, obvious on consideration, that a mechanical stabiliser, on the lines suggested, accentuates rather than prevents any move the inherent stability of the machine suggests, acting when switched on merely as an auxiliary means of detecting and counteracting wind gusts in an exactly similar manner (though earlier to detect them) to that in which the pilot acts, counteracting 'roll,' and, even when switched on, leaving the pilot free to bank as he may desire to clear any obstruction.

"Having personally searched through the British patents before taking out my own, I can well understand your objection to 'gadget' stabilisers. Only one or two, if any, of the inventions to be found there bear the stamp of the practical man, few appear to be the products of men who had any experience of aeroplanes, mostly the inventor seems to have had a 'nebulous fancy which passed with him for thought.' None the less, when one considers how cheaply such an apparatus as I have suggested could be put to the test, it seems a pity that we should not learn whatever it has to teach us, always bearing in mind that experimental mechanism must be capable of instant disconnection at the pilot's discretion."

A well-known aviator writes:—"I must give vent to my feelings about 'gadget' stabilisers.' First of all I must admit to being prejudiced against any such thing. Not only would any such device give me 'cold feet,' but probably cold hands as well, having nothing to do with them, in the shape of stick wagging, etc., but seriously there is one point which I do not think anybody has yet brought up, and that is this: With the arrival of the fool-proof aeroplane, which the birth of 'gadget' devices seems to herald, there will have to also arise, and probably will, a fool (not proof) market to buy them. This, as it should be, is good for trade, but my fear is that with the arrival of this class of buyer there is a grave danger of there arising a host of incompetent builders, who each and all will strive to turn out a cheap machine, and in this ambition they will be most undesirably assisted by the 'gadget stabiliser,' for instead of spending money on designing a machine properly, any old thing with wings will do, if fitted with some patent

gadget which will do it all for them. But what about it, if this gadget jams or dislocates itself, as all such things must do some time or other? That is what I ask you. What about it then?"

Mr. Handley Page writes:—

"Your second paragraph on page 76 of this week's issue of your paper is interesting but incorrect. It states:—'Be it noted that these machines made no pretence to fore and aft stability, but they were wonderfully good laterally.'"

"Inherent longitudinal stability in an aeroplane depends on:

"(1) a small Moment of Inertia about a transverse axis, and

"(2) a large self-righting moment if the attitude of the machine to its flight path is altered.

"In the H.P. machines to which you refer, the first quality is obtained by the grouping of the masses at or around as nearly as possible to, the centre of pressure of the machine. The way in which the machines of this type fly is evidence of the presence of quality No. 2. The 100-h.p. biplane has been flying with the empennage removed so that there was no fixed stabilising surface, and with the pilot's hands off the controls. The planes alone provide, at the extremities of their swept back tips, sufficient stabilising effect without the aid of the empennage. The full ordinary control is provided for the pilot so that he can operate the machine quite as quickly as one of the straight plane type."

A Word to Advertisers.

One regrets to find that those responsible for a certain paper concerned with aircraft, apparently afraid to admit the position that this paper has taken in the estimation of the aeroplane industry, are reduced to padding out their advertisement pages with advertisements which appear contrary to the instructions of the advertisers, or of a size greater than that stipulated by the advertisers. Documentary evidence to this effect is in our possession. One would remind manufacturers and potential advertisers in general of a commercial axiom which says that advertisements which cost nothing are worth precisely what is paid for them. Also, there can be but little satisfaction in ordering and paying for that which one knows other people get for nothing. One would not draw attention to this point but for the fact that the practice to which reference is made above gives a spurious air of affluence to a paper and is calculated to deceive new advertisers as to the respective values from an advertiser's point of view of the various papers dealing with aircraft.

Flying at Hendon.

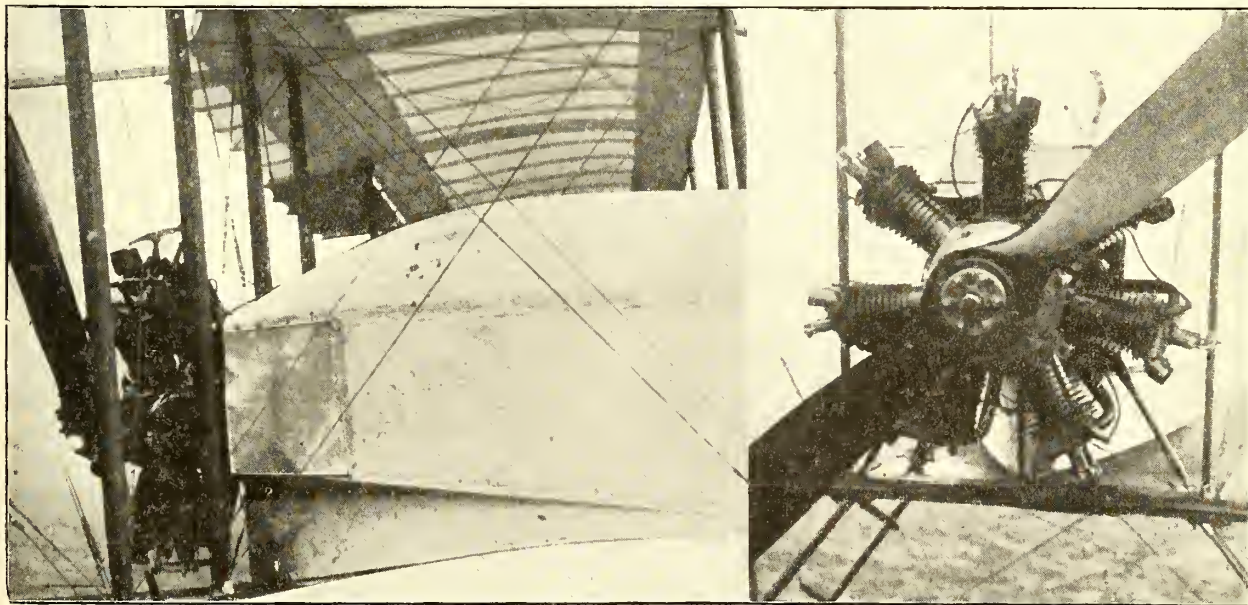
One has seen Hendon under diverse conditions: dominated by heat, wind, rain, mud and fog, but never before has a full-fledged aviation meeting been held with the ground white with hoar-frost. At lunch-time a thick white mist hung over everything, and aeroplanes passed in and out of sight like noisy spectres. The ghostly image of Mr. Manton's biplane, descending in a super-corkscrew glide, made one's teeth chatter. A new arrival is an Avro biplane (50-h.p. Gnome), which Mr. Hall has bought for his school stud. The machine flies—like an Avro—and should make an excellent brevet and post-brevet machine.

In view of the mist it was decided to hold a speed handicap instead of a cross-country race. In the first heat were Mr. L. Strange (Grahame-White biplane, 50 h.p.), Mr. Marcus Manton (G.-W. biplane, 50 h.p.), M. Louis Noël (Maurice-Farman, 70 h.p.), and Mr. Walter Brock (Blériot, 80 h.p.), the last with a passenger. In the second heat were Mr. Reginald Carr (G.-W. biplane), Mr. G. Lee Temple (on his old school Blériot monoplane with a 35-h.p. Anzani), Mr. G. M. Dyott (Dyott monoplane, 50 h.p.), and Mr. Philippe Marty (Morane-Saulnier monoplane, 50 h.p.). Mr. Carr finished first, with Messrs. Marty and Dyott close up. Mr. Temple failed to get off until it was time to turn, and thereby lost many valuable seconds, and consequently finished about half a lap late.

During the race and the "lining-up" intervals, Mr. Hamel amused himself by looping the loop uncomfortably close to the ground. For some cryptic reason he has coloured his Morane-jet-black, the only relief being a pair of white wreaths on the top of the wings, just to indicate which side of the machine happens to be nearest the spectators. It is a scientific fact that a black surface absorbs light and heat—not a bad idea in semi-Arctic weather. The irreverent have christened the machine "Black Maria."

The usual exhibition flights followed. Mr. Grahame-White flew early in the afternoon.

The flying on Sunday was of the usual first-day order, in spite of a treacherous wind, many exhibition and passenger flights being made by Mr. Grahame-White on the Maurice Farman, Mr. Walter Brock on the Blériot, Messrs. Manton, Strange, and Lillywhite on Grahame-White biplanes, M. Louis Noël also on the Maurice Farman, and Mr. J. Lawrence Hall on his 50-h.p. Avro. The wind was not strong, but was reported to be very puffy. Flying was brought to a close by the fatal accident to Mr. Temple, described elsewhere.



Streamline Body Work: Above are shown two views of the 50-h.p. Vickers Radial Engine, and the stern of the body to which it is fitted. This body is tapered aft so as to bring the air streams into the engine and cool it. The arrangement acts well, though behind an ordinary tank the engine had a tendency to overheat.

Flying at Brooklands.

On Tuesday, Mr. Pixton took the ninth Sopwith over to Farnborough in a strong wind. On Wednesday, Mr. Barnwell, with Mr. Knight as passenger, flew the Vickers gun-carrying biplane, 100-h.p., to Farnborough, and put it through its tests. Unfortunately, in the course of the rolling test the propeller hit an obstruction, and a piece flying off the end damaged the upper plane. Its official speeds are reported to have been 65 and 44. On the same day, Mr. Pixton, at Farnborough, put the Sopwith through its hour's flight and other acceptance tests. Mr. Raynham took the Avro, 80-h.p., to Farnborough, to be inspected by Major Higgins, O.C. No. 5 Squadron, and came back again later in the day. Mr. Alcock was out on the Maurice Farman, but appeared to be having engine trouble.

On Thursday, three Army Avros came to Brooklands from Farnborough, apparently to inspect the D. F. W. machine, but owing to the absence of Mr. Cecil Kny, Herr Roempler did not do much flying. Mr. Crawshaw arrived from Hendon on the old Blériot, 50-h.p., descended steeply, alighted with a terrific bump, bounced up about 40 feet and flew another circle before landing. The machine was taken to the new Blériot works for an overhaul, and about time, too. Mr. Barnwell, by permission of Vickers, Ltd., on the Martinsyde monoplane, saw each of the Army Avros safely off as far as Byfleet Station, doing a circuit round each before returning. He afterwards tested the second Vickers gun-carrier.

On Saturday, Mr. Raynham on the Avro, and Mr. Alcock on the Maurice-Farman-Sunbeam were out in the afternoon. On Sunday, Mr. Raynham on the Avro, and Mr. Barnwell on the Martinsyde were out in very bad weather, Mr. Raynham taking one or two passengers.

Flying at Leeds.

On Saturday, January 17th, Mr. Hucks had been advertised to give a further demonstration of looping the loop, and as a consequence no fewer than 20,000 people visited the Moortown Aerodrome, in spite of the threatening weathr. Mr. Harold Blackburn was the first to ascend, on his 80-h.p. Blackburn monoplane. He carried Dr. Christie as a passenger and put up a very creditable flight. A very heavy shower caused Mr. Blackburn to descend, and flying had to be suspended until 3.30, when Mr. Hucks' Blériot was wheeled out. About one

minute sufficed to see him strapped in position in his machine, and he ascended to perform what, in the writer's opinion, was the prettiest and most extraordinary flight he has ever seen.

He remained up for twenty minutes, pirouetting, turning and twisting in the most remarkable manner. His loops numbered eight, and he remained on one occasion flying on his back for over thirty seconds. The crowds were wildly enthusiastic. This flight brings Mr. Hucks' score in looping up to 124.

On the Sunday, Mr. Harold Blackburn, accompanied by Dr. Christie, flew on his 80-h.p. Blackburn to York and back.

Flying at Hull.

Mr. B. C. Hucks will be giving demonstrations of looping the loop and upside down flying at Hedon Racecourse, Hull, on Thursday, Friday, and Saturday next. February 5th, 6th, and 7th, at 2.45 p.m. each day (weather permitting).

Flying at Eastbourne.

On Friday and Saturday next, January 30th and 31st, Mr. Hamel is to give a demonstration of looping the loop and upside down flying at Eastbourne. This will be the first occasion on which a regular exhibition of flying has taken place at this seaside resort, apart from the usual flying by the pilots of the Eastbourne Aviation Company.

A New Science.

One understands, on the worst possible authority, that now "boucling-the-boucle" is becoming common-place, the next manifestation of scientific flying will be "tacking-the-backwash." It will be a scientific demonstration of how combatants in warfare will not attack one another, and for that reason all patriotic citizens should go and see it and take their sons (three for the price of two).

The scientific display will be given by two intrepid ex-loopists, who, mounted on their erstwhile looping machines, will ascend to a height of two thousand feet, and there endeavour to upset one another with their respective backwash. Each pilot must be securely strapped in, and be provided with a bottle of Phosferine and a copy of the "Daily Mail." Any competitor touching any portion of his opponent's machine will be ejected from the aerodrome (by order of the manager), and the best two out of three upsets will constitute a win. The "ring" will be marked out by a chalk line on the ground a quarter of a mile square.



SOME NEW PILOTS.—(1) Lieut. T. L. S. Holbrow (Caudron), (2) Mr. Maurice Bernal Blake (Grahame-White), (3) Lieut. Hallahan, R.N. (Bristol), (4) Mr. R. Cripps (Grahame-White), (5) Mr. W. H. Elliott (Avro), (6) Mr. Norman Howarth (Grahame-White), (7) Mr. A. Delfosse Badgery (Caudron), (8) Mr. H. R. Johnson (Caudron), (9) Sergt. Bateman (M. Farman), (10) A.M. Jerrard (B.E.).



M. Marc Pourpe (in white) and Jules Védérines (on left in cap) at Cairo. Behind Védérines is Dr. Freund, the only pilot who has taken a certificate in Egypt.

The "Manton" Chemical Fire Extinguisher.

The Vacuum Cleaner Company, of Cardiff, are placing on the market a new chemical fire extinguisher. No particular originality is claimed for the form of the machine,

which is of the well-known cone-shaped pattern that has become almost standard. What they do claim, however, is that this machine is more efficient than its competitors. It will throw a 40-ft. jet. No rubber tubing is employed. No corrosion is possible, as mechanism comes into contact with liquid only while the machine is actually at work.

The initial cost is low, although the materials employed (namely, steel, coated with lead for the container, and brass for the mechanism) are of the highest class. A very true remark appears in the "Manton" circular to the effect that it is only after the fire that a man realises what his insurance policy did not cover.

Mr. Manton Day, who is responsible for the new extinguisher, will be remembered as managing Mr. B. C. Huck's highly successful tour in the West of England in 1911, and his experience then and since makes him particularly appreciative of the problem, with which aviators have to deal in case of fire in sheds



The Manton Extinguisher. or on their machines.

The Week's Work.

Weather Reports for Week Ending January 25th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Montrrose ...	Shower	Fog	Bright	Cloudy	Wind	Dull	---
Hendon ...	Wind	Wind	Wind	Fair	Fair Frost	Fog Frost	Bumpy S.W. Wind
Calshot ...	Dull Cold	Dull Cold	Dull Cold	Dull Cold	Very Cold	Very Cold	---
Eastchurch ...	Calm Fine	Gusts Windy	Wind	Calm	Bright	Bright	Windy
Salisbury Plain	Fair	Dry	Fine	Cold	Calm	Frost	Dry
Brooklands ...	Wind	Imposs. Tuition	Wind	Wind	Fog	Fog Wind	Bumpy Wind

School Reports.

Hendon.—At GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Strange and Manton. Pupils with instructor on machine: Messrs. Parker, Cowley, Piercy, Lindop, J. B. Graham, and Barrs (new pupil). Straights or rolling alone: Messrs. Morris, Bjorkland. 8's and circles alone: Messrs. Cripps, Lillywhite, Norris, Bjorkland, Strange and Carr. Machines in use: Grahame-White propeller biplanes and a Blériot.

At HALL SCHOOL: Instructors during week: Messrs. Denys Ware and J. L. Hall. Pupils with instructor on machine: Friday, Mr. Burn, on Avro. Sunday, Mr. Allen, studying controls; flying with J. L. Hall. Machines in use: Tractor biplanes, Avro (50 Gnome), two Caudrons (35 Anzani and 50 Gnome). A monoplane (25 Anzani) is in course of construction. Two passengers taken on Thursday afternoon.

At BLÉRIOT SCHOOL: Instructors during week: M. Jules Teulade several flights in brevet monoplane. Mr. E. Gower (certificated pilot), several flights for practice. Mr. Dunn, trials for certificate. Mr. R. O. Crawshaw, on Blériot (50 Gnome), from Hendon to Brooklands, leaving the machine there in new Blériot sheds.

At W. H. EWEN SCHOOL: Instructors during week: M. Baumann and Mr. F. W. Goodden. Pupils, doing straights or rolling alone: Lt. Kinneer, Messrs. Bankes-Price, Busk, Carruthers, and Garvin (new pupil). Half-circles, alone: Lt. Kinneer. Circs.: Messrs. Cooper and Murray. Machines in use: 35-h.p. Caudron biplanes.

Brooklands.—At BRISTOL SCHOOL: Instructors during week: Messrs. Merriam and Halford. Pupils, with instructor on machine: A.M. Locker (4 flights), 35 mins.; Lts. Binney (6), 65 mins.; Lawrence (new pupil) (10), 1½ hrs.; Ames (2), 25 mins.; Fraser (8), 75 mins. Straights or rolling alone: Lt. Binney (4), 30 mins.; Mr. Racine-Jacques (2), 18 mins.; A.M. Locker (2), 15 mins.; Lt. Fraser (2), 17 mins. Machines in use: Three school propeller biplanes.

At VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight and Elsdon. Pupils with instructor on machine: Lts. Crosbie (11), Monckton (9), Prichard (7), Mr. Hurst (2), Mr. Creagh (4) (biplane). Straights and rolling alone: Lt. Monckton (1), Mr. Creagh (1) (biplane), Mr. Hinshelwood (1) (mono) 30 mins. Machines in use: Three propeller biplanes, one mono. Mr. Barnwell testing new gun-carrying biplane.

Eastchurch.—Early on Monday morning Mr. Gordon Bell had out new Short tractor, 100-h.p. Gnome. After running engine a short time, he flew to Isle of Grain. This machine is intended for Grain Station. Mr. Bell was up again on Thursday, 22nd, in afternoon, doing pretty fancy flying for about 30 mins. On Saturday afternoon, Mr. Bell was again up on a Short.

Salisbury Plain (BRISTOL SCHOOL): Instructors during week: Messrs. Jullerot, Sippe, Voigt, and Merriam. Pupils with instructor on machine: Capt. Walcott (12 flights) 2½ hrs., Mr. Stutt (15) 2 hrs 40 mins, Mr. Tod (1) 12 mins, Mr. Gipps (3) 35 mins, Lt. Binney (2) 20 mins. Doing straights or rolling alone: Capt. Walcott (2) 14 mins, Mr. Stutt (3) 23 mins. Machines in use: Two school propeller biplanes, one 80-h.p. tractor biplane, one 50-h.p. tandem mono.

The Britannia Trophy Machines.

It is worthy of note that the machine on which Captain Longcroft won the Britannia Trophy was a Bristol-built "B.E." doped with Cellon.

**CRITCHETT
WELDING & ENGINEERING CO.,
WELDING & BRAZING
.. SPECIALISTS ..**

Aluminium Welding Guaranteed.

Wire, Write or Phone

Tele. Address: Flexicable, Watloo, London. Phone: 2424 City.

Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.

HANGARS

50' x 45' ERECTED, £115

Any other Size to order.

GARAGES, CLUB HOUSES

and other Buildings. Estimates Free.

WIRE-WOVE ROOFING CO.,

108, Queen Victoria St., London, E.C.

"EMAILLITE"

**THE PREMIER DOPE
British Manufactured**

"AS TIGHT AS A DRUM."

*As adopted by H.M. Government and
all the leading Manufacturers.*

The BRITISH EMAILLITE Co., Ltd.

50 Regent Street, Piccadilly, S.W.

Phone, 280 Gerrard. Wire, Santochimo, London



C. G. SPENCER & SONS.

HIGHBURY GROVE, LONDON, N.

Manufacturers of

Aeroplanes, Airships, Balloons, and

Aeronautical Apparatus of every description,

Fabric, Propellers and Accessories.

Write for List.

Telegrams: "AERONAUT, LONDON."

Telephone: DALSTON 1893.

Invaluable to Designers.

THE RESISTANCE OF THE AIR AND AVIATION

EXPERIMENTS

Conducted at the Champ-de-Mars Laboratory

BY

G. EIFFEL

Past President of "La Société de Ingénieurs
Civils de France."

Translated by JEROME C. HUNSAKER,
Ass. Naval Constructor, U.S.A. Navy, from the

2nd EDITION, Revised and Enlarged,

42/- NET.

With a Photogravure Frontispiece, 27 Folding
Plates, and 137 Illustrations and Diagrams
in Text and

NEW MATTER not hitherto Published.

*Write to "The Aeroplane" for detailed Prospectus
and all Particulars.*

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this
office by 6 p.m. MONDAY, to ensure insertion.
For the convenience of Advertisers, replies can be received at
the office of THE AEROPLANE, 166, Piccadilly, W.
Special PREPAID Rate—18 words **1/6**; Situations
Wanted ONLY—18 words **1/-**. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND
AND ABROAD." (By Arthur E. Edwards,
F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS &
CO., LTD., Patent Agents and Consulting Engineers,
Chancery Lane Station Chambers, W.C. Phone 4536
Holborn.

PATENTS.—How to Patent Invention. Particulars,
with advice, sent free.—Write, KING, Registered
Patent Agent, 165, Queen Victoria Street, London.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL at Brook-
lands. Thoroughly graded tuition from slow
biplanes to fast monoplanes.

THE GRAHAME-WHITE SCHOOL OF FLYING
possesses innumerable advantages. The tuition
fees are low and inclusive; its instructors are highly
capable, its machines most suitable, and the London
Aerodrome at Hendon, where the School operates, is
only 6½ miles from Marble Arch, and is within easy
access from all parts. Prospective pupils should write
for illustrated prospectus to the GRAHAME-WHITE
SCHOOL, London Aerodrome, Hendon, N.W. Tele-
phone, Kingsbury 120. Or 166, Piccadilly, W.

W. H. EWEN SCHOOL OF FLYING.
W. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work, £50. Passenger flights from £2 2s.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION CO., London Aerodrome, N.W.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

TUITION AT REDUCED FEES.—Pashley Bros. are prepared to take a limited number of pupils for R.A.C. brevet, at specially reduced fees.—Apply PASHLEY BROS., Shoreham Aerodrome, Sussex.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—THE BLACKBURN AEROPLANE COMPANY, Leeds.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome engine in first-class condition, engine recently overhauled. Can be seen flying by appointment. Price complete £200.—Box 531, c/o THE AEROPLANE, 166, Piccadilly, W.

ENGINES

WANTED, 50-h.p. Gnome in first-class condition.—

Send full particulars and price to THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.

40 E.N.V., with tanks, radiators, propeller, spare parts, etc.; perfect condition; £80 complete.—18, Addison Road, Bedford Park, Chiswick, W.

FOR SALE.—50 h.p. Gnome; condition as new; six months' full guarantee. May be tried before purchase.—Z., 8, Mount Road, Hendon.

FOR SALE.—100 h.p. Green, in perfect condition; radiators and all fittings; new counter, etc.—Box 530, c/o THE AEROPLANE, 166, Piccadilly, W.

MISCELLANEOUS.

INVENTORS' ideas developed. Experiments conducted. Models made. Highest skilled mechanicians. Low charges. Secrecy guaranteed.—BRAUN, Engineer, King's Cross.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—WM. MALLINSON AND SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.

GRAMOPHONE.—20-guinea handsome, hornless, in-laid Sheraton cabinet, height 4 ft., record cupboard, completely enclosed, on wheels; purchased April; with records, £5 10s. Approval willingly.—3, Aubert Park, Highbury, London.

MODELS.

M.S.C. DURATION MODEL. Splendid Flyer. Size 31 ins. by 24 ins. Price 5 shillings. Flight of nearly 400 yards has been obtained with this model. Sets of parts, with drawings and rubber for making above model, 2s. 6d.—MURRAY, SON & CO., 387a, High Road, High Cross, Tottenham, N.

T. W. CLARKE AND CO.,
HAMPTON WICK, MIDDLESEX.

'Phone—Kingston 869.

Est. 1906.

THE Pioneer Aeroplane Accessory Manufacturers wish you the Compliments of the Season, and offer to you an accurately marked steel rule, gratis, with every order to the value of 5s. Send along your orders, and you will be delighted. Send stamp for lists. Be in time!

S. J. KEMP & Co.,
CROWN WORKS, Kingston-on-Thames.
(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)
Every Requisite for Model Aeroplanes. Send 1d. for List.
Models of Every Description built promptly.
Phone 321 Kingston. Telegrams "Garage. Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

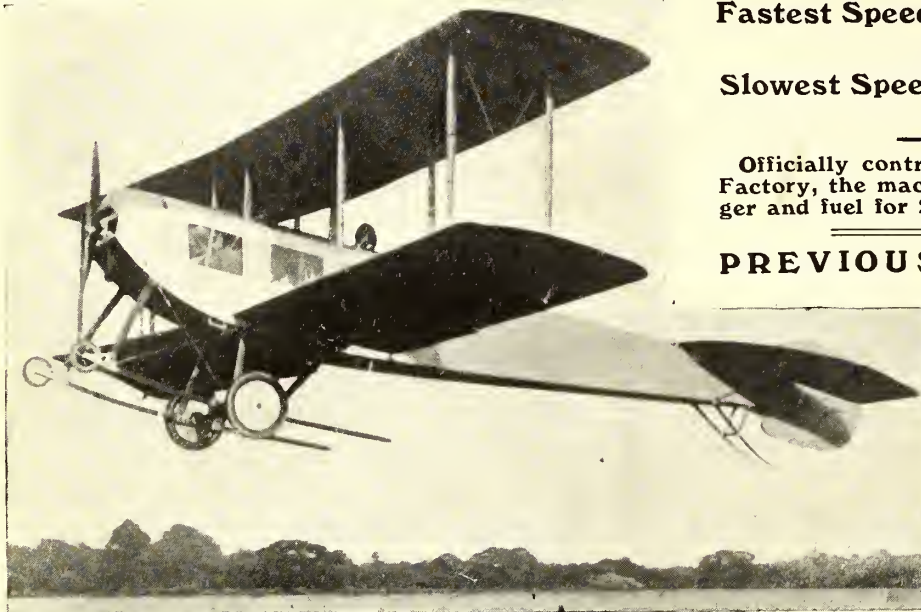
USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

EFFICIENCY is the characteristic of **SOPWITH AEROPLANES.**

The Latest SOPWITH BIPLANE (80 h.p. Gnôme) beat all **WORLD'S RECORDS FOR EFFICIENCY.**



**Fastest Speed 92 miles
(154 kms.) per hour.**

**Slowest Speed 36.9 miles
(61 kms.) per hour.**

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

PREVIOUS RECORDS on the preceding type of **SOPWITH BIPLANE (80 h.p. Gnôme).**

British Height Record (Pilot alone) 11,450 ft.

British Height Record (Pilot and 1 Passenger) 12,900 ft.

British Height Record (Pilot and 2 Passengers) .. 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works: **KINGSTON-ON-THAMES.**

Telegrams:
"SOPWITH, KINGSTON."

FLYING AT HENDON

**SATURDAY NEXT, JANUARY 31st, 1914
METROPOLITAN MEETING. Grand Speed Handicap at 3 p.m.**

COMING EVENTS.

Sat., Feb. 7th. **FEBRUARY MEETING.**

Sat., Feb. 14th. **ST. VALENTINE MEETING.**

Sat., Feb. 21st. **SUBURBAN MEETING.**

Sat., Feb. 28th. **HENDON MEETING.**

WINTER SEASON—RACES Every SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

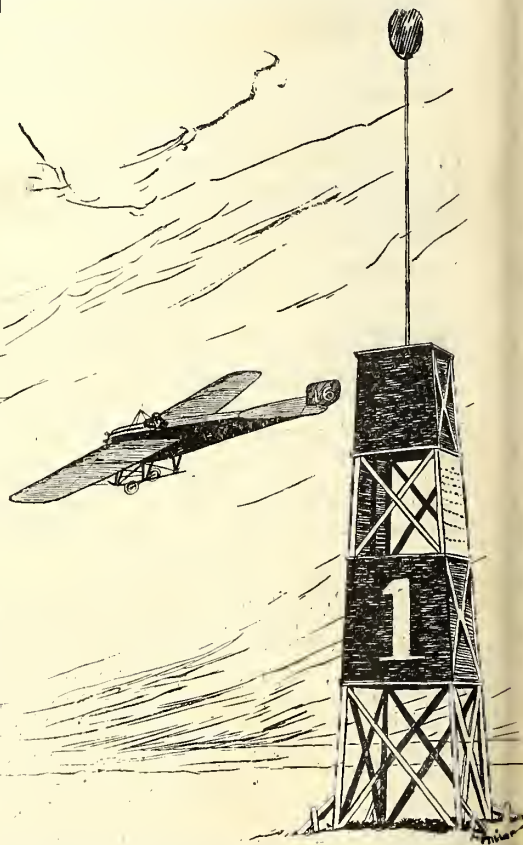
Admission 6d., 1s., 2/6 (Children Half-price).
Motors (including chauffeur), 2/6

The London Aerodrome, Hendon

Proprietors: *The Grahame-White Aviation Co., Ltd.*

HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."

LONDON: 166, Piccadilly, W. Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."



"THE AEROPLANE," FEBRUARY 5, 1914.

THE AEROPLANE

Edited by CHAS. G. GREY. ("Aero-Amateur")

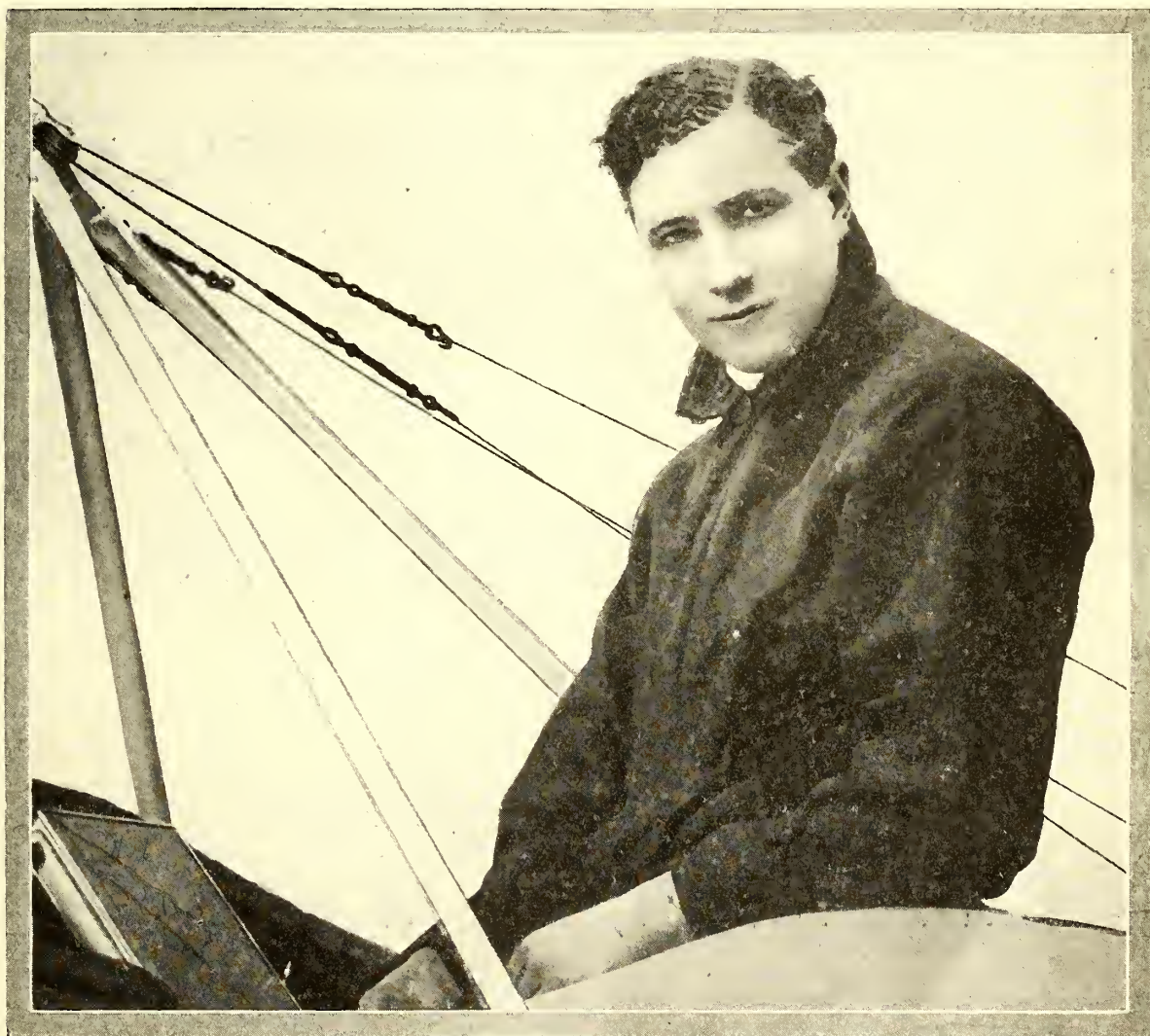
12
WEEKLY

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, FEBRUARY 5, 1914.

No. 6

AN HONOUR TO AVIATION.



(Photograph by F. N. Birkett, Percy Road, Shepherd's Bush, W.)

Aviation has received a signal honour by His Majesty's command that Mr. Hamel should give demonstrations of flying at Windsor last week. Mr. Hamel is here shown in the Blériot monoplane on which he flew on Thursday.

The "Bristol" *Flying Schools*

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,
AEROPLANE WORKS
AND
FLYING GROUNDS—
EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9, MINSTER-ON-SEA.

Telegraphic Address :—"FLIGHT, EASTCHURCH."

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all newsagents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.				ABROAD.			
	s.	d.			s.	d.	
3 months, post free	1	8		3 months, post free	2	9	
6 " " "	3	3		6 " " "	5	6	
12 " " "	6	6		12 " " "	11	0	

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Uses of Airships.

It is always a good augury for the future of any new thing when it becomes an ordinary topic of conversation among people who dine, as apart from those who merely eat, for it shows that the "upper suckles"—as Jeames would call them—are beginning to take an interest in that new thing, intelligent or not, according to the mental outfit of the individual. Consequently, when one finds aircraft disputing with the tango, the Ulster question, and the art-status of the revue, the attention of a dinner-table, and when one finds that famous fliers as a topic of conversation are as interesting to the ordinary woman as Mr. Joe Jackson or Miss Gertie Millar, one begins to feel that the great heart of the nation is stirring, that the people of the Empire (British, not London, W.) are awaking to a sense of the white man's burden, and that England still stands where she did. That, of course, is the trouble—England insists on standing still where she did instead of moving on.

These philosophic reflections are produced by two casual conversations at the table. At one of these a lawyer person of sporting inclinations and blameless life (apart from his profession) assured me that one famous flier would certainly lose his nerve before long, because he spent every night, till the small hours of the morning, at the various night clubs, dancing the tango with a certain little lady—who, unfortunately for herself, and for legal accuracy, has, in fact, been seriously ill for months, and has only been out of doors two or three times, and then simply that she might fly. That is how rumours get about.

In the other case, an eminent K.C., who should, if his father's name goes for anything, be distinctly more intelligent, informed a dinner-party that aeroplanes were finished, that it was useless to waste money making them, they were merely death-traps, they were *vieux jeu*, the only aircraft with a future was the dirigible, everybody at the Admiralty thought so, all his personal friends the Sea Lords said so, every eminent sailor agreed with him—and he flung famous names like Jellicoe and Bridgeman and Battenberg about as recklessly as Miss Vesta Tilley flings her stage sovereigns. That is how public opinion is formed.

Airships and Aeroplanes

However, as you see, the Great Minds of the British Public are taking an interest in our aircraft, which is something after all. Let us therefore consider for a space that question of aeroplanes and dirigibles. Incidentally I gather that the crews of the said dirigibles prefer that they should be called airships, so we had better adopt the name definitely. You see, such a machine remains an airship even if, owing to circumstances over which it has no control, it ceases to be a dirigible, so the former name is really the more logical.

The airship has many advantages of its own, and it has many disadvantages. Taking the disadvantages

first, the airship is never likely to become a privately owned vehicle to the same extent as the aeroplane, on account of its size and the consequent expense of housing. Keeping a private airship would be like keeping an elephant in a flat, whereas it ought to be quite possible before long to garage an aeroplane at a properly organised aerodrome for the same weekly rent as one can garage a car. One can hire a shed now for thirty shillings or two pounds a week, and the present shed would easily house four or five aeroplanes of the type which we will have in future, with folding wings, such as are built by the Short Brothers.

Also, the airship is no safer than the aeroplane under most circumstances, although people fondly imagine it to be so. The two Zeppelin accidents, to the L.I and L.II, probably bring the passenger-miles per death for airships to a lower level than those for aeroplanes. Fatal accidents in airships are less frequent than in aeroplanes because the mileage of airships is so much less and there are fewer such vessels, but when such accidents occur they are on a wholesale scale. It may be true that airships are less developed than aeroplanes, because of the cost of producing new types, and that the ultimate perfect airship may be safer than the ultimately developed aeroplane, but even that is a very debatable point, and, at any rate, it seems probable that the aeroplane will remain safer than the airship for some time to come.

Considered purely for war purposes, hitherto and at present the speed of the fastest airship has been and is less than half that of the fastest aeroplane, and about equal to that of an ordinarily slow aeroplane. This naturally gives the aeroplane an immense advantage as a scout and as a destroyer, for the vast bulk of the airship makes it visible, and so avoidable, long before it can see the scouting aeroplane, and it also makes it an easy mark for the bomb-dropper.

Further, the airship as we know it is awkward to handle in big winds when on or near the ground, and its slow speed makes it impossible for it to make headway, or even to maintain its position over a given spot in a wind in which a contemporary aeroplane would perform without very much difficulty and certainly with less danger.

The Airship's Advantages.

Still, the airship has certain advantages. Despite the skill and pluck with which aeroplane pilots, especially in Germany, have flown at night, the airship has much the better of it in the dark. It can drift in perfect silence over the ground it wishes to reconnoitre, and so stands a good chance of carrying out its work without attracting attention. It affords a fairly steady gun platform, and so can defend itself with a sporting chance of success, unless attacked by aeroplanes of much higher speed, in which case the aeroplanes can worry it into ascending and descending till gas and ballast are both exhausted; though,

if the airship has the Willows swivelling propellers (adopted without thanks by the Royal Aircraft Factory), the task of the aeroplanes becomes much more difficult.

It is, however, in our little Colonial wars that the airship has the greatest utility. A couple of small airships of even the "Eta" class, stationed at Peshawur, and cruising two or three times a week along the frontier, would do more to keep the Pathan tribesmen in order than a whole division of infantry. Imagine the moral effect of night cruises, and a searchlight playing on the hill villages from 1,000 feet or so. The tribes would lie very quiet with the Sirkar's eye on them by night as well as day.

In Somaliland, also, as I suggested long ago, the eminently sane Mullah's dervishes could be kept conveniently on the run by two or three little airships which would be ridiculously useless in a European war. The permanent maintenance of such vessels on the spot would cost less than the unhappy camel police, and the airships could cover as much ground in a day as the camelry would in a week.

The hill tribes in Assam, which occasionally get out of hand, would also be the better for a little airship patrol, and an occasional demonstration of how a village may be burnt by an enemy high out of reach.

Airships for India—

In all these cases the matter is in the hands of the Indian military administration, it is true, but they concern us none the less. It is somewhat surprising under the circumstances that the Indian Army's first aircraft should have been aeroplanes rather than airships, for it would be little short of murder to send an aeroplane crew out on real business on the North-West frontier, in Assam, or in Somaliland, whereas even with a war in full blast there, aerial reconnaissance in an airship would be a mere picnic.

The British Army has apparently given up airships for two reasons. Primarily because our Expeditionary Force is never intended to fight a Continental Power by itself, but will operate simply as an auxiliary army corps with our allies. Consequently the Royal Flying Corps (Military Wing) is only intended to provide air scouts for an army corps and not for a national, let alone an imperial, army. There is at present no provision for air-scouts to operate with our special reserve battalions, or with our Territorial Army (such as it is). Secondly the whole of the coast-defence work has been turned over to the Navy, who have in consequence taken over the airships, which are apparently regarded as more suitable for coast defence operating from a fixed base than for rapid movement with an army corps in the field, which idea, after all, has much to recommend it. Nevertheless, it strikes one that the Indian Army, having a land frontier to patrol, certainly needs airships for the work, which is exactly analogous to that of the Navy at home.

—And in Africa.

The South African Citizen Army also needs airships rather than aeroplanes, whether to assist in disarming the Basutos—a pleasant little job it will have to face soon—or simply for police patrols over Zululand, and eventually along the Rhodesian frontier, when

Rhodesia comes into the South African Union. It seems the limit in foolishness that two armies such as those of India and South Africa should bar airships just because our little Expeditionary Force does not happen to need them.

It seems very possible, too, that airship patrols would be very useful in the Soudan, where, in the Bahr-el-Ghazel, particularly, we are continually having little troubles which cost us good men for Egypt's sake. These little scraps do not appear in the papers, for the fact that an officer and gentleman has gone out in a good fight doing his duty on the frontiers of the Empire is naturally of less interest than the "dramatic murder" of some gutter brat who has been choked with a cinema-theatre circular by his divorced mother. Nevertheless, K. of K. might do well to study the possibilities of airships for the Soudan before the enthusiasm caused by his flight with the blatant Olivier, and the fine performances of MM. Pourpe and Bonnier, and the flying apache Védérines, leads him to set about purchasing aeroplanes to the exclusion of all else.

The Navy's Use of Airships.

Apparently the Navy's idea of airships is to use them largely as weapons of offence against sea-craft of the lighter sort, and as scouts further ahead of the fleet than aeroplanes dare venture alone. Certainly the big airship which can go off cheerfully on a three-day cruise by herself, and can keep in touch by wireless with her fleet the whole time, is something like a sound proposition. But such a vessel by no means annuls the usefulness of aeroplanes. The best airships of to-day cannot exceed 50 miles an hour, whereas the fastest practical seaplane of my acquaintance, the 160 h.p. Short, does 76½ miles an hour, carrying a wireless outfit and fuel for 4½ hours—or a radius of action of well over 300 miles—and one can see that such a seaplane, if employed in numbers, may prove a very useful weapon against the big airship if she is met far out at sea.

If, on the other hand, the big airship is operating with a fleet against coast defences she would be met by armed aeroplanes say like the Vickers gun-carrier, which with its speed of 65 miles an hour or so, would be very annoying to her, especially if assisted by quick-climbing bomb-droppers like the Bristol, and mosquito craft like the 90-mile an hour Sopwith scout and the 83-mile an hour Avro. Certainly the big airship has its uses. But it is not going to have it all its own way, even in the Navy. And, there are men who are sufficiently foolish, and crazy, and patriotic, and old-fashioned, to go and ram a 90-mile an hour aeroplane slap into the side of an airship, which would make a very nasty mess of everyone concerned. Moreover, such a desperado, if he were clever enough, would have quite a sporting chance of getting clear away in a parachute just before the collision—at any rate, as good a chance as forlorn-hopes used to have in the old days of storming parties.

All of which is very gruesome, and ill-befits the aeroplane's real mission to the world as the dove of peace. Nevertheless, it is one phase of the development of aircraft, and at the present moment the most important, so we may as well be as deadly as possible, for it is cheaper in the end.—C. G. G.

The R.A.F. and the "Trade."

Those who are interested in the true attitude of the Royal Aircraft Factory towards the "trade" have doubtless been entertained by recent attempts to defend the past behaviour of that interesting establishment. The true attitude of the Royal Aircraft Factory officials may best be gauged from the apparently inspired articles which appeared recently in the "Times," which throughout gave one the impression that they were deliberately intended to show the incapability of the

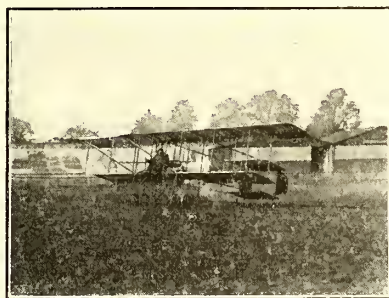
trade, and the transcendental genius of the Royal Aircraft Factory and its officials. No amount of pseudo-scientific white-washing can remove the impression left by the sneers at the trade which pervaded the articles in the "Times," and it appears obvious from internal evidence that the writer of those articles is in much closer touch with the officials of the Royal Aircraft Factory than are the writers of articles or letters in any contemporary newspaper. However, as was stated last

LEARN TO FLY
AT THE
VICKERS FLYING SCHOOL
BROOKLANDS.

Thorough, Efficient and
Economical Tuition.



VICKERS Flying School, Brooklands



Instruction on the Biplane



Instructing Pupils in Aero Engines



Chief Pilot Barnwell

VICKERS, Limited,
AVIATION DEPARTMENT,
VICKERS HOUSE, BROADWAY,
WESTMINSTER, S.W.



Assistant Pilot Knight

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

week, under the new system of inspection under military supervision, the trade need have little to fear in the future, and, as competition is always good for trade, the competition of a Government aerial dockyard will doubtless arouse a proper spirit of emulation in independent constructors, while all the experimental work done by the Royal Aircraft Factory will make for progress.

The sole and only reason why this paper has so systematically attacked the Royal Aircraft Factory in the past was that certain officials there went deliberately out of their way to do damage to the trade. They actually hindered the production of promising machines by impressing on manufacturers that it was no use submitting machines of suggested types or designs for tests or inspections. As the people who made these statements were also the people to whom these machines would have to be submitted before the Army was allowed to purchase them, it was obviously absurd for the manufacturers to produce such machines.

There seems now to be a decided tendency on the part of officials who have hitherto been notable for their offensiveness to conduct themselves civilly towards members of the trade, and unless underhand influences are still at work to damage and hinder the trade for the glorification of the Factory officials, there will be no need to continue any adverse criticism, though one may do well to remember the maxim, "*Time Danaos et dona ferentes.*"

The excellence of the B.E. machines in many respects has always been admitted freely in this paper; in fact, on occasion the wrath of manufacturers has been incurred because the B.E. has been held up as an example of certain good qualities. But the B.E. machine has been estimated at its proper value and has not been exalted to the undue prominence given to it in the House of Commons by Colonel Seely, and in the "Times," by that newspaper's aeronautical correspondent.

The idea that the whole trade is busy cutting its own and one another's throat by cutting the price of B.E. machines is really quite absurd. The price the Army agreed to pay for B.E.s without engines would have been quite fair if the civilian officials concerned had been more reasonable, but those con-

tractors who have lost money on their first orders have done so primarily because their time was wasted by alterations in drawings, in many cases simply by bad drawings, by alterations in the designs and material, and by inspectors refusing to pass certain things which might very well have been passed, although one may admit that on occasion they have passed material which never ought to have been passed at all.

The champions of the R.A.F. in the Press have come on the scene just a little too late. The harm has been done, and such of it as could be remedied by the Department of Military Aeronautics has been remedied. It now remains to be seen to what extent the Department of Military Aeronautics is prepared to encourage progress in aviation by supporting praiseworthy efforts on the part of independent constructors to produce improved types. Judging by some recent orders which have been placed, and others which are pending, but which one is not at liberty to announce, one is inclined to think that the trade will have very little to grumble at so long as it is progressive.

No one with sense would accuse Mr. Massac Buist of the "Morning Post" of "wild and irresponsible criticism," nor would one regard him as a chronic grumbler or a revolutionary, hence one may set him up as an unbiased writer against the "Times" correspondent, who, if not definitely inspired by the Factory, is obviously biased in its favour. At the finish of a recent well-reasoned article by Mr. Buist on "Our National Aerial Service," occur the words:—"If the Royal Aircraft Factory is to continue to be in effect an instrument for throttling or starving the British aeronautical industry, then we had better abolish the Factory until such time as the authorities shall find out how to use it and to keep it in its proper place."

Nothing more definitely hostile has ever been said about the R.A.F., even by the present writer, and coming from a writer of Mr. Buist's standing, who is not influenced by personal considerations, and appearing in a paper whose motives cannot be questioned, it carries even more weight than if it appeared in this paper, which exists primarily for the good of the Services, but admittedly depends for its support on the despised aeroplane trade.—C. G. G.

The King Honours Aviation.

Mr. Hamel was recently honoured by an invitation to fly before the King at Windsor Castle, on Thursday, January 29th. To save delay Mr. Hamel flew from Hendon to Brooklands, accompanied by a passenger, on the Wednesday afternoon. For the first mile the passenger was not unhappy, as it was his first flight on a Morane-Saulnier monoplane, and the sensation was pleasant. But shortly afterwards he felt, or thought he felt, unusual vibration from the engine—a vibration which had a kind of rocky-road feeling in it broken into minute particles. Everything shivered, but the pilot did not seem to care, for they still continued the flight. The passenger, constitutionally afraid of aeroplanes, became more and more apprehensive, and had visions of gentle churchyards shaded by stately trees of great antiquity. The country below offered no attractions as a place of sacrifice. Four thousand feet in the air over Hounslow is never charming on the most pleasant of days. Finally, after a journey packed with discomfort, both mental and physical, a landing was made at Brooklands.

After a few minutes' rest Mr. Hamel took the machine up alone to "loop the loop," having admitted himself that he did not like the vibration of the engine. After "looping" twice he came down, saying the shaking was worse than ever. The engine was then taken down. After removing the nuts holding it in position the front plate came away without resistance. The distributor end of the crank-shaft had fractured through and had held together during the cross-country flight only because of the peculiar conformation of the breakage! The passenger's dream of churchyards was not unwarranted.

The next thing was to get this part replaced by the following morning in time to obey His Majesty's command. The discovery was made at seven p.m., after most works had shut down. The Sopwith Aviation Company was telephoned to, and as overtime is being worked an answer was received. With great courtesy Mr. Cary helped in every possible way, dismantling a Gnome engine that Mr. Hamel might have the part required. By three a.m.

the part was fitted to Mr. Hamel's engine, but later it was found to be out of truth. It was then too late for any further alteration, but again assistance came from outside. Mr. Raynham, in a very sporting manner, took Mr. Hamel as passenger on the Avro biplane (80 h.p. Gnome) to Hendon, covering the distance in thirteen minutes. At Hendon Mr. Hamel borrowed a Blériot monoplane (80-h.p. Gnome) and flew straight to Windsor, arriving at 12.30 p.m. He then flew before the King and Queen for half an hour, later having lunch in the Castle. After lunch he started back for Hendon, accompanied by the passenger of the day before. At first all went well, and a number of circuits were made in front of the Castle before leaving for Hendon. The first part of the journey was uneventful at an altitude of five thousand feet. When about ten miles from Hendon more engine trouble was experienced, and, finally, a descent made in a field about a mile out.

On Saturday, Mr. Hamel made a series of flights at Eastbourne on the Morane-Saulnier, now happily recovered from its indisposition. These flights were made in a wind of from 55 to 60 miles an hour. Owing to the height of the wind a landing had to be made in the open country towards Pevensey, the flight back to the aerodrome being made later. The gate was good, and the greatest kindness was shown to Mr. Hamel and his crew by Mr. Fowler and Mr. Frank Hucks.

On Sunday afternoon the machine was repacked and sent by rail to Weybridge. By eleven a.m. on Monday, the machine was re-erected, and at mid-day Mr. Hamel landed at Windsor. After talking to the King and Queen for some minutes he made a further flight and "looped the loop" ten times in succession. The day was bright and clear, and save for a few random remous all was pleasant. After this flight Mr. Hamel had lunch in the Castle. Before leaving in the afternoon, Mr. Hamel made four or five more "loops." The King had a long conversation with Mr. Hamel on flying in general and also discussed the mechanism of the machine in French with Mr. Gondre, Mr. Hamel's engineer in charge.

On Friday, the machine returns to Eastbourne for a further exhibition on Saturday next.

What other People say:

PRESS NOTICES.

Daily Telegraph—17th Nov., 1913.

"The spectators at Hendon were given a remarkable demonstration of the wonderful qualities of this fine 'Avro' Biplane, whose splendid performance stamped it as one of the finest Aeroplanes ever designed, if not indeed, the finest of all. One heard with great satisfaction that Raynham had set up two new records for the Aerodrome, having covered his fastest lap in 1 min. 11 secs., and completed six laps in 7 mins. 27 secs. . . . and this though the 'Avro' Biplane is a standard machine designed for purposes of general utility and not primarily for speed."

Army & Navy Gazette—
15th Nov., 1913.

"Not only is the 'Avro' very fast—its speed cannot be much below 80 miles an hour—but its speed variation is enormous, as Raynham strikingly showed last Sunday, when switching off and on, but remaining in level flight the while, he covered the Aerodrome course at something like 30 miles an hour."

The Financial World—21st Nov., 1913.

"Hearty congratulations have been showered on Messrs. A. V. Roe & Co., who have done great work for British aviation by producing a machine which I believe to be without an equal at the present time. On the following day I had an opportunity of testing for myself its remarkable climbing powers, its wide variation of speed, and its steadiness in a fairly choppy wind, and the experience was most exhilarating and enjoyable."

80 = h.p. AVRO

NOTHING BETTER.

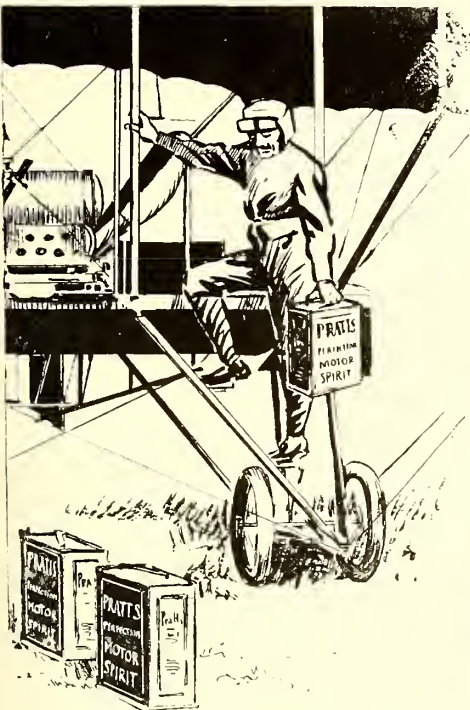
A. V. ROE & CO., LTD.,

Contractors to the Admiralty, War Office, and Foreign Governments.

Clifton Street, Miles Platting, MANCHESTER.

T legrams: "TRIPLANE, MANCHESTER."

Telephone: FAILSWORTH 337



—aviators

are particular as to the fuel they use for their engines. That is why PRATT'S Perfection Motor Spirit is so rapidly increasing in popularity among aeronauts. Its famous 100% Purity, and Reliability under every varying condition are the chief causes of its very decided favour in Flying circles.

PRATT'S

Perfection Motor Spirit

—always reliable

The State of French Military Aviation.

BY W. E. de B. WHITTAKER.

Parliament is an institution founded for the purpose of stifling public opinion. It is a safety valve for the nation's absurdities, a theatre for the born orators whose private mutterings might cause trouble. A man may think thoughts which seem to him of divine origin, and he will believe in them until they are publicly expressed with all the unctuous insincerity of the public speaker. The government of a country is not really very adversely affected by Parliament. It is certainly not controlled by it. Parliament keeps the people in a proper and decent ignorance of affairs of state, and is so far a virtuous institution.

In Great Britain Parliament exists that "Punch" may print a weekly cartoon of note and that the daily papers may not be too short of copy when the murder season ends for the year. But Parliament serves other good purposes as well. It on occasion causes revelations to be made that prevent neighbouring Powers dying of envy. It causes embarrassment to affluent Ministers, and provides an infinitude of indigent incompetents with annual if minute incomes. On occasion it has the good effect of destroying national conceit by the revelation of scandals in public administrations which have been unwritten secrets for months before.

England is, however, not the only nation troubled by a too impetuous pack of penurious members of Parliament. France, too, is not without its worries—it possesses one or two deputies who understand the subject on which they speak, and, as this paper is an aviation weekly, one will regard only that member who has knowledge of aviation. Senator Reymond has learnt to fly, and, more wonderful still, has acquired a proper understanding of the subject of aviation. He has for many months made a close study of the manner in which military aviation is

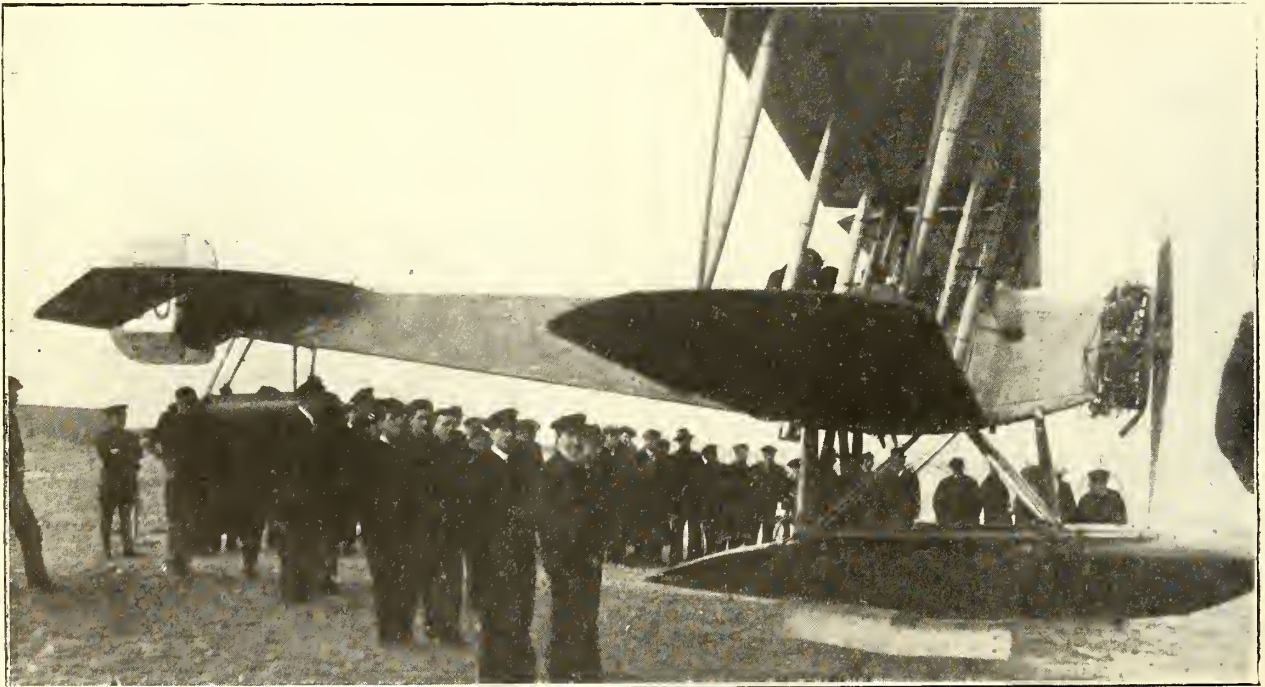
managed in France, and the result to him is much inquietude of soul.

On January 23, in the Senate, the House of Lords of a monarchless country, he explained in a lengthy speech the inefficient state of that fifth arm in which the country had taken such pride and had reposed such faith. The revelation was surprising to some, perhaps; but in general it has been known for some time. For the first time, however, actual figures and actual incidents have been quoted, and that, too, in such a way as to prevent reply.

He began, as might be expected, with a lengthy reference to the state of the dirigible section of the fifth arm. To quote him:—"Germany possesses 14 dirigibles, of which 7 are Zeppelin destroyers; France has only 7 in all. The cubic capacity of the German dirigibles is 203,000 metres; that of French balloons is only 57,000 metres. The German dirigibles have motors of 600 to 800 h.p.; ours have only motors of 300 h.p. The Germans have a speed of 80 to 95 kilometres an hour. One only of ours has a speed of 55 kilometres an hour, and the rest are not speedier than 45 kilometres an hour."

He points out that, whilst the French dirigibles are unarmed, the German machines have on them Q.F.'s capable of firing 600 shots a minute (one would point out in parenthesis that this does not appear to fit the description of any known quick-firer of the present day). They can carry about 25 men and a ton or a ton and a half of explosives. Projectiles of about 1,300 lbs. weight can be set free without any disturbance of stability.

He spoke pathetically and kindly of the terrible losses suffered by Germany in the advancement of military aeronautics. But even in his picture of the heroic perseverance of the Germans he points out that



The Sopwith seaplane (100-h.p. Anzani) about to start at Yarmouth, piloted by Lieut. C. L. Courtney, R.N., commanding Yarmouth Air Station.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
 from the FARMAN BROTHERS

for the building of

HENRY & MAURICE FARMAN

Aeroplanes
 AND
Hydro-Aeroplanes.

In Great Britain and the Oversea
 Dominions.

Works and Flying Ground
HENDON.

Offices :
 47, VICTORIA STREET, S.W.

The special design of the
Handley Page Planes

gives to the aeroplane that
 inherent stability which makes
 this machine so easy to learn
 upon, so simple to fly.

FLYING SCHOOL - - HENDON

HANDLEY PAGE, Ltd.

72, Victoria Street, S.W.

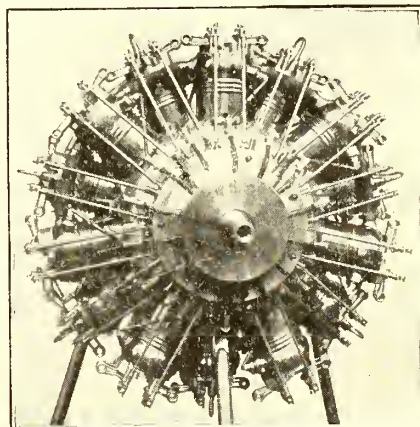
Works : Cricklewood, London, N.W.

CONTRACTORS TO H.M. WAR OFFICE.

TELEPHONE :
 2574 VICTORIA.

TELEGRAMS :
 HYDROPHID, SOWEST, LONDON.

SALMSON **AERO-ENGINES** SYSTEM CANTON - UNNÉ.



Sole Agents for the United Kingdom :
The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

L.I. had flown 12,000 miles and more before it came to its end. France has no such record, or one approaching it, in the history of military aeronautics.

The most deadly weapon of the debater then came ready to the hand of M. Reymond. He spoke of promises and the breaking of them. On November 25, 1912, at a moment when a wave of aerial enthusiasm swept through the country, and when apprehension was high, seven large aerial cruisers, of 24,000 cubic metres capacity, were ordered for delivery in October, 1913 (as to four), and January, 1914 (as to the remaining three). The execution of the promise is, as ever, far from what it ought to be. Of the machines ordered, three are in course of construction, four have not been started, and none obviously have been delivered.

That his story might not lack point and weight, he dwelt for a time on technicalities such as suited his case. Quoting German authority, he said that that country had decided that airships of beyond 13,000 cubic metres in size and 65 kilometres in speed must be of the rigid type, this owing to the risk of collapse owing to wind pressure, a state of affairs spoken of as unnecessary and unlikely by Captain Waterlow, R.E., R.F.C., in a recent lecture before an English learned body. And, of course, France the decadent had neglected the rigid type of airship. Only one has ever been built in France, and that, beautiful to the eye, has been until lately a failure.

Of course, if one has dirigible balloons, one must also have gas with which to fill them and give them buoyancy. At this point in the speech those who listened showed signs of interest, for the subject, or one side of it, was familiar to them. There are in Germany eleven establishments, apart from Parliament, set aside for the purpose of making gas, six of them on the French frontier. M. Reymond was not on this point without some personal knowledge. He visited Frankfort some time ago. At this place the gas-producing station is $2\frac{1}{2}$ miles from the aviation headquarters, to which it is connected with a pipeline. The reverse of the picture is that in France there is only one State-owned hydrogen plant on a large scale. As elsewhere, there are a number of chemical works producing gas as side-product, and even then not constantly. According to the same delightful plan which has so endeared our own aeronautical authorities to the aeronautical industry, the Government resolutely refuses to give any indication of the amount of gas required at any stated time.

Then airship hangars occupied attention. Here the English are in need of a lesson, for as yet we have none that is capable of housing any ship of real size. In Germany there are 30 of from 430 to 590 feet in length. In France there are 12, not all of sufficient size to accommodate airships of modern size. Then, again, whereas the German sheds are distributed throughout the country in accordance with a well-planned strategic scheme, in France they lie as Fortune has placed them. Maubeuge, Toul, Verdun, Epinal, Belfort, have each their hangar, enlarged from time to time to admit the latest arrival. So much for the first line. In the second line there are

sheds at Chalons and Reims, far too small to house the ordinary dirigible of to-day. In the third line there are none, as the sheds at La Motte-Breuil, Issy-les-Moulineaux, and Saint-Cyr are not State-owned. Thus, as Senator Reymond impressed on his hearers, if the frontier was occupied by the enemy, the French dirigibles would have no place to rest their bags by night.

Again, providing against "the day" with that forethought which is a powerful forerunner of success, many of the German sheds are built on turn-tables that, massive though they be, can be turned into the most favourable position for housing a dirigible in a high wind. Those which are not built in this manner are equipped with an elaborate system of rails by which a landing balloon can be guided to the safe seclusion of a shed.

In Germany every preparation is made for aerial travelling by night. Great electric lights are fixed at important points to act in a manner as aerial light-houses. Searchlights are so arranged as to facilitate landing at the different stations. In France nothing of the kind has been done. In fact, such provisions of night lights is forbidden by the authorities for fear it might aid an enemy of subtle brain. Instead, petrol bonfires have to be lit if landings by night must be made, and uncertainty adds to the other perils of a never too safe pursuit.

The work done by the aerial sections of the two services is equally disproportionate. On October 13, 1913, Zeppelin L.X. flew for twenty hours at 5,000 feet. Another at an earlier date covered a distance of 1,100 miles without intermediate descents. On the other hand, in France, during the manoeuvres of 1912, only three flights were made by dirigibles, because on most occasions the different balloons were out of action. Last year the dirigibles made much better showing. They were used wrongly, it appears. On each occasion they made reconnaissances of a tactical nature, instead of strategic. The aeroplane can tell what is happening in the enemy's lines; it is the dirigible's duty to find out what is happening behind. Both types of aircraft have their respective duties, and it is not good policy to confuse their sphere of influence.

M. Reymond did well to start his disclosures by treating with dirigible balloons. It is not only a matter of national danger when one nation neglects one precaution entirely, it is a danger which concerns the whole world. Germany has a magnificent fleet of the most expensive and valuable aircraft the world can supply under present conditions. The magnificence and importance of this is increased by the strange fact that every other nation has failed to provide any similar fleets to balance the German force. Great Britain has hardly begun, and France has forgotten much of what it once knew, or should have known. Senator Reymond, despite his great love of aeroplanes—he is an aviator himself of no mean order—is broad-minded enough to see that a fleet of submarines or torpedo-boat destroyers is weak indeed unless it is strengthened with a few heavier craft of wider range.

(To be continued.)

Seaplane Progress.

One learns on excellent authority that the new 160-h.p. Short tractor seaplane has reached a speed with full load of $76\frac{1}{2}$ m.p.h., this including pilot, passenger, wireless outfit and $4\frac{1}{2}$ hours' fuel. Recently one of the 100 h.p. seaplanes carrying pilot, passenger, wireless equipment, and fuel for 5 hours, climbed to 3,000 feet in 14 minutes, which is probably about as good as has ever been done with a fully loaded seaplane, if not better. One only regrets that one of these machines cannot be entered for some of the big French and German competitions, and if we have a rich sportsman left in this country, it would pay him to buy one of these machines and run it as

he would a horse in ordinary racing. Incidentally it would come considerably less expensive.

Armstrong-Whitworth Aircraft.

Various paragraphs have appeared in the papers stating that Sir Wm. Armstrong, Whitworth and Co., Ltd., are building an aeroplane factory at Selby, Yorkshire, and have recently purchased several hundred acres of land at Barlow near that town. It is understood, however, that the buildings to be erected there are for the purpose of constructing airships on a large scale, together with a shed which will house one, or possibly two, rigids of the largest size.



ACCLES & POLLOCK, LIMITED.

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**

OLDBURY, Send for 25" X 20" Chart of Full-Size Sections,—Post Free
BIRMINGHAM. TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST.

FOR **AEROPLANES.**
ONE QUALITY—THE BEST.

THE BOOK OF THE DAVISON INVENTIONS

Highly Interesting to all engaged in Aeroplane Manufacture. Special Aeroplane Petrol Tanks and devices to secure improved efficiency in the use of Petrol. Write for a copy and my offers in Acetylene Welding for making light frames and chassis of unprecedented strength without lugs, effecting great saving of time and money, with improved reliability.

A. G. DAVISON, 163 ARLINGTON ROAD, CAMDEN TOWN, LONDON, N.W.

SPARS and all
BOOMS AEROPLANE
PARTS to
makers' own designs

Send us your Requirements and let us quote for you.

R. CATTLE,
Machine Woodworking
to the Trade,

27 Wybert St.
Stanhope St., N.W.

STRUTS
SKIDS

Aluminium Castings

OF EVERY DESCRIPTION MADE & RE PAIRED.
Chill Castings for Aeroplanes a Speciality
ON ADMIRALTY AND WAR OFFICE LISTS



R. W. COAN

219,
GOSWELL
ROAD,

LONDON, E.C.

Telegrams—
Krankases,
Isling,
London.

Telephones—
3846 City
4879 Central.

CELLON

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

IMMEDIATE DELIVERY OF THE BEST DOPE.

Reg. Offices:—

17, OLD BROAD STREET, LONDON, E.C.

Telegrams: "AJAWB, LONDON."

Telephone: 5359 London Wall.

Factory:—

STIRLING CHEMICAL WORKS,
CANNING ROAD, STRATFORD, E.

GODDARD'S MOTOR, MOTOR-CYCLE, and CYCLECAR HOUSES.



ft.	ft.	ft.	high	...	£	s.	d.
9	6	7	1/2	...	4	5	0
10	7	7	3/4	...	5	7	6
12	8	8	...	...	7	0	0
14	8	8	1/2	...	8	5	0

Carriage Paid.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned 3 in. T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing.

Large Illustrated Catalogue with prices of other houses, post free.

Makers of Portable Wooden Buildings of all descriptions.

Our Prices are all Carriage Paid.

GODDARD'S, St. Mary's Road, ILFORD, ESSEX.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

NAVAL.

The Air Department of the Admiralty is evidently doing its best to encourage British originality and industry. As was intimated in these columns several weeks ago, three Wight Seaplanes are on order, as are also many Short tractor seaplanes of the folding-wing type (160-h.p. Gnomses). A. V. Roe and Co., Ltd., have five tractor seaplanes (160-h.p. Gnomses) on order, besides a 240-h.p. seaplane with two 120-h.p. Beardmore-Daimlers. As already notified, the Sopwith Company have several bat-boats of 100 or 120 h.p. in hand, and a 240-h.p. twin Austro-Daimler biplane, as well as several tractor biplanes of the ordinary twin-float type with 130-h.p. and 200-h.p. Salmson engines. Practically all the naval machines, except certain school machines being built by Short Bros., are to be fitted with wireless, and several of them will carry guns. Several interesting seaplanes are also being built experimentally by Vickers, Ltd., but at the moment one is not at liberty to describe their leading features.

The developments of the Dundee base, which have been dormant for some time, now promise to take definite shape. Orders have been received at Port Laing to make ready to move to Dundee. These operations are to be commenced on February 18th. The officers in charge of the station are Major Gordon and Capt. Barnby, R.M.L.I. Much reconnaissance work has been done over the Forth, but owing to the "lie of the land," the locality has proved bad owing to wind-gusts, and the unsuitability of the situation has made it necessary to move. This is the third shift to be made by the naval aeroplanes in the district, as they have been at Leven and Port Laing, and now go to Dundee. One imagines, however, that much work will still be done at the mouth of the Forth.

At Calshot, on Monday, Lieut. Edmonds, R.N., was out on the twin-float Sopwith seaplane (100-h.p. Anzani), and on Tuesday, Sub-Lieut. Travers, R.N.R., made a flight on the Borel (80-h.p. Gnome). On Wednesday, Lieut. Bigsworth, R.N., took out the Bristol (80-h.p. Gnome), which showed the uncommon habit of flying too tail-high. On Friday this phenomenon was investigated by Mr. Coanda, of the Bristol Company, with a view to readjustment. Sub-Lieut. Travers, R.N.R., also made a flight on the Borel (80-h.p. Gnome).

On Monday of last week, at Eastchurch, owing to thick fog, the only machine out was the new B.E. 70 Renault, built by Hewlett and Blondeau. On it Mr. Ronald Kemp made two short flights. On Tuesday Eng.-Lt. Briggs, R.N., made numerous flights on Blériot 39. Mr. Kemp was again on the B.E. Sub-Lt. Rainey, R.N.R., was flying Dep. 36. Wednesday was a good flying day, and the naval pilots took advantage of it. Sub-Lt. Peirse, R.N.R., was on S65 with Lt. Clarke-Hall, R.N. Sub-Lt. Marix, R.N.R., made two flights on Sopwiths 27 and 104. Lt. Davies, R.N., on the new B.E. made two nice flights. Capt. Kilburn, R.M., on S63, Lt. Collett, R.M., on Avro 41 and S63, Sub-Lt. Littleton, R.N.R., with Lt. Ireland, R.N., on Short 64, fitted with wireless gear, Asst.-Pmr. Finch-Noyes, R.N., on the H. Farman, Lt. Osmond, R.N., on S63, and Eng.-Lt. Briggs, R.N., on Blériot 39, were all out.

On Thursday, Cmdr. Samson, R.N., flew S10. Capt. Courtney, R.M.L.I., on S63, Sub-Lt. Littleton on Avro 16, Lt. Osmond on S64, with Lt. Ireland, Lt. Collett on Avro 41, Sub-Lt. Marix on Sopwith 27, and later on Sopwith 104, Capt. Kilburn on S63, were all out. Eng.-Lt. Briggs made a cross-country flight on the Blériot, returning high up, and finishing with a fine spiral. Asst.-Pmr. Finch-Noyes was on H. Farman 31, and M. Farman 70 was flown by different pilots. On Friday there was only a little flying, Sub-Lt. Peirse returned on S65 from a long cross-country flight. On Saturday, Sub-Lt. Rainey was piloting S64 with Telegraphist Sparks for two or three circuits. Cmdr. Samson made a long flight on S10. Sub-Lt. Marix took Sopwith 104 across country with Lt. Osmond, returning in the afternoon.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending January 24th, 1914:—

Flying Depot, South Farnborough.—Experimental and repair work was carried on as usual.

No. 2 Squadron, Montrose.—The move to the new aerodrome was completed during the week; many instructional flights were carried out by the latest joined officers. Observation of submarines was also carried out on one day.

No. 3 Squadron, Netheravon.—The officer and non-commissioned officer pilots were out every day of the week.

No. 4 Squadron, Netheravon.—The officer pilots of the squadron made numerous short reconnaissance flights on B.E.'s and M.F. machines. Two B.E.'s were flown from Farnborough for use with this squadron.

No. 5 Squadron, South Farnborough.—Many instructional flights were made by the pilots of A and B flights.

The War Office, January 27th, 1914.

In the course of the next few weeks large deliveries of aeroplanes should be made to the Army by the various contractors, as every endeavour is being made to obtain as many machines as possible during the early part of March. Doubtless this special effort is being made so that the Secretary of State for War may be able to make a satisfactory announcement at the presentation of the Army Estimates; but as it also means an adequate supply of machines for the Royal Flying Corps (Military Wing), no one will quarrel with the state of affairs.

One gathers that, in order to increase the supply, the Royal Aircraft Factory is working at high pressure and is running a night shift. So long as the machines turned out by the Factory under pressure are subjected to as severe an examination as those delivered by the constructors, all will be well, and under the Inspections Department, R.F.C., one may be certain it will be so; but one recalls instances where, under the old system, Factory work was allowed to pass which would not have been accepted from constructors.

B.E.'s are on order in quantities from Vickers, Ltd.; the British and Colonial Aeroplane Co., Ltd.; the Coventry Ordnance Works, Ltd.; Sir W. Armstrong, Whitworth and Co., Ltd.; and Handley Page, Ltd.; and in smaller numbers from Hewlett and Blondeau; the Grahame-White Aviation Co., Ltd.; and Saunders, of Cowes. The Franco-British firms who at present have orders in hand for aeroplanes of their own design are the Aircraft Manufacturing Co., Ltd. (Farmans), and M. Louis Blériot. Among British firms there are nine Sopwith single-seater scouts on order and some Vickers steel-built gun-carrying machines, but no others of British design, except the two experimental Duncans.

It is now confirmed officially that Capt. Becke is at Farnborough for promotion and to take command of a new squadron being formed there. The squadron at Montrose will miss Capt. Becke very much, for he is held in the highest respect by the men and proved a good friend to them on the past year's manoeuvres.

Capt. George Dawes started from Farnborough on Tuesday, January 27th, with Lieut. Harvey Kelly as passenger, on a Maurice Farman machine, and after five hours' flying, landed at York. He had not arrived at Montrose up to Sunday last.

Squadron 2 at Montrose has been doing much flying during the past week. On Monday work was done in the sheds, as a gale made flying impossible. On Tuesday, Lieut. Rodwell was out on B.E. 229, and Lieut. Lawrence flew on B.E. 226. Wednesday was bright but hazy, and Lieuts. Corballis and Dawes were out in B.E. 223, while Major Burke took Lieut. Lawrence up in B.E. 226. Later, Lieut. Lawrence took Major Burke up in the same machine. Lieut. Empson piloted B.E. 228 alone. Next day, Lieut. Rodwell was out in B.E. 229, and Lieut. Lawrence did some of the finest flying ever seen at Montrose in B.E. 226. A gale of rain and wind made flying impossible on Friday and Saturday.

The naval machine (Short, 80 Gnome, No. 42) is still at the Montrose Aerodrome, and, according to rumour from Port Laing, it may stay there till the new Naval Air Station is formed at Dundee.

FRANCE.

The French papers are now beginning to take an interest in the bad state in which the army aeroplanes are maintained, and are putting the blame on those who did not provide a

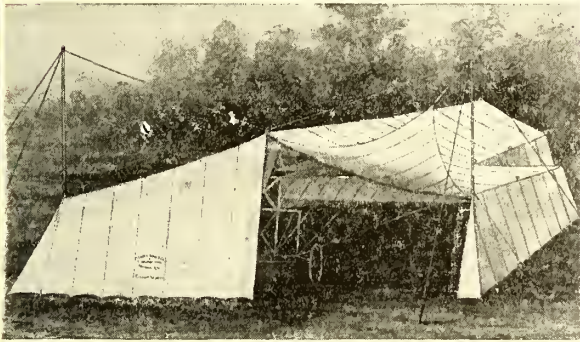
TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane is one of **PIGGOTT'S PATENT AEROPLANE TENTS**.

Pattern No. 3, suitable for a Bleriot Monoplane. Price in waterproof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.

Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

No User of Tools can Afford to be Without our Notable Catalogue of Labour Saving Tools

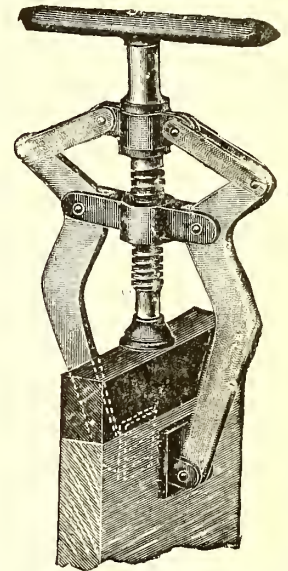
"Recollection of Quality remains long after the price is forgotten."

UNIVERSAL WOODWORKERS' CRAMP. New Design. Instantaneous Action

TOOLS

New Wood Workers' No. 21

6d. postage. 383 pages.



Write for New Engineers' and Metal Workers' (all trades) Catalogue No. 20

Contains 560 Pages, ENTIRELY FREE on receipt of 1/-, to defray cost of post and packing.

Largest Stock of Tools and General Fittings in Gt. Britain

Write us your requirements.

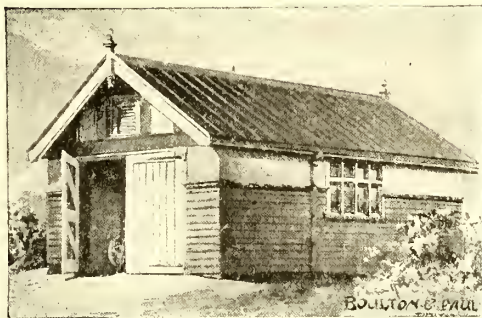
Established 1828.

R. MELHUISH, Ltd., 50-51, 84, Fetter Lane, E.C.
Tools, Machinery & Hardware Merchants. 143, Holborn Bars.

No. 987w. Has a single screw which works both arms... each 3/6
No. 988w. Has a double screw; the longer one may be used independently while the two arms grip the work. The wing nut on top locks the arms... each 4/6

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR HOUSES, CYCLE HOUSES.

GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

Telegrams: "Bucheron, London."

Telephone: 3811 Hop.

TIMBER

for any type of

AIR or WATER CRAFT

Send your enquiries to

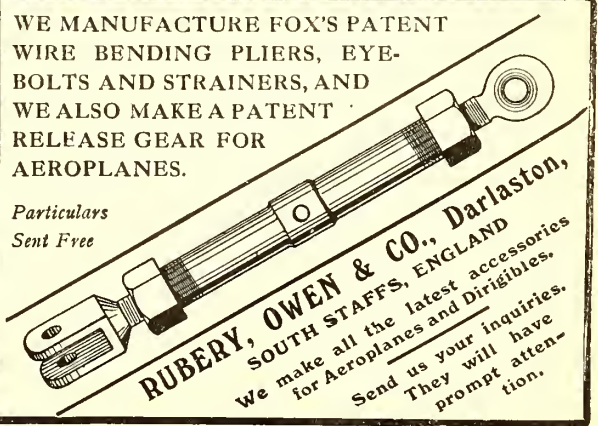
JOSEPH OWEN & SONS, LTD.,

199a, Borough High Street, London, S.E.

WE MANUFACTURE FOX'S PATENT WIRE BENDING PLIERS, EYE-BOLTS AND STRAINERS, AND WE ALSO MAKE A PATENT RELEASE GEAR FOR AEROPLANES.

Particulars

Sent Free



RUBERY, OWEN & CO., Darlaston,
SOUTH STAFFS, ENGLAND
We make all the latest accessories for Aeroplanes and Dirigibles.
Send us your inquiries. They will have prompt attention.

proper supply of properly trained mechanics for the job. A reader of this paper who was in France recently says that the fatal accident to an officer and his passenger who came down some miles from the nearest village and lay undiscovered for hours after they and their machine had been burned, was entirely due to the bad state in which the machine was kept, and that it undoubtedly broke in the air. The officer who was piloting the machine was doing one of his periodical qualifying flights, and had taken out a machine which had been standing idle for a considerable period. Against this state of affairs one may put up the German system, for at Doeberitz, for example, every machine in every shed is brought out once a day, the engine is run to see that it is in proper order, and the machine is examined in detail.

Apparently the French officers are passed straight into the aviation service instead of first having such thorough instruction as British officers receive at the Central Flying School; they are only required to be good fliers, and nothing else. For the military brevet some theoretical knowledge of motors is exacted, but the examination is a farce. The officers thus have to depend entirely on their subordinates for their safety, and it is felt in France that a better system of recruiting mechanics should be instituted. Particularly it is desired that men from the big motor and aeroplane works should put in their military service as mechanics in the aviation branch, and that the rest of the mechanics should be recruited entirely from employees of motor and motor-cycle firms.

One aeroplane maker has actually sent in a complaint that, out of 13 of his workmen called up for military service, only three are in the aeronautical service, one being in the engineers, one in the artillery, one in the cavalry, and seven in the infantry! On the other hand, in one escadrille, the non-commissioned ranks of which include 100 men, there are 25 motor mechanics, 7 men who have specially studied aeronautical work, 20 ordinary industrial workers, 8 employees of commercial concerns, 30 agricultural labourers, and 10 assorted of no particular training. Thus, where every man should be a trained mechanic, only a quarter are so trained. One of the specialists is a Farman frame-builder, which possibly explains why he is attached to an escadrille of monoplanes. The 10 oddments include several young men who originally passed the examination for the aerostation troops as balloonists.

Under the new three years' service law it has been permissible for young men to choose the corps to which they belong, and naturally a number have chosen the aeronautical branch who are quite unsuitable. M. Saint Aubin, writing in "L'Aero," urges strongly that every man engaged for the aeronautical service should first of all pass an examination as to his ability. M. Saint Aubin also complains that, owing to the amount of red-tape connected with the aviation service, the aviation centres, which ought to resemble efficient workshops, are becoming more and more like depots for the storage of national archives.

Corporal Style, of the aviation centre at Crotoy, started on his Caudron to fly to Laon last week, but the intensity of the fog compelled him to land at Picquigny, where he passed the night. This being the first time an aeroplane had landed at Picquigny, the inhabitants feted the gallant aviator and formed a committee to make him a small presentation. The praise was well merited, however, for the flight had been made in weather of Siberian severity, with the temperature 12 degrees below freezing-point.

The Bréguet signalling device as an aid to artillery was tested last week at the aerodrome of Velizy, in connection with artillery operations. M. Derome, on a 100-h.p. Bréguet, making the demonstration. The results are said to have been decidedly encouraging.

Lieut. Delvert and Capt. Niquet, of the French Army, were killed at Bourges on February 2nd. It is said that their biplane collapsed in the air, probably a result of employing ploughboys among the mechanics in the French Aviation Service.

A meeting was held at the Sorbonne in Paris on February 1st to celebrate the closing of the national subscription for military aviation. President Poincaré and the Ministers of War and Marine were present.

M. Reymond, President of the National Subscription Com-

mittee, gave an account of what had been accomplished with the £158,573 of subscriptions which had been received. This sum had provided the army with 210 aeroplanes and 75 pilots, and, in addition, 70 sheds and landing-grounds, chiefly between Paris and the north-eastern frontier. M. Reymond further announced that the National Committee, the work of which was now ended, was to be merged in the General Aeronautic Association of France, thus forming a great society which was to carry on the campaign of the committee for a large aerial fleet.

At the close of the meeting President Poincaré also delivered a speech, in which he referred to the need of greater safety in flying, accidents having caused the death of 50 French military aviators in five years.

On January 26th, at Le Crotoy, M. René Caudron put a military biplane (80-h.p. Le Rhone) through its tests before Cap. Destouches, carrying a useful load of 275 kilogrammes (620 lbs.), and reaching the standard thousand metres in 6 mins. 43 secs.

The military escadrille in Morocco of the centre at Casablanca is showing much activity. It is said that the escadrille, which is composed of Blériots has made a voyage of 750 kilometres under command of Capt. Hervé, travelling via Casablanca-Marrakech-Mogador-Mazagan-Casablanca. The whole journey was performed without incident.

GERMANY.

Following on the award of the life-saving medal to Lt. Bertram, of the Imperial Navy, a like reward was made to Sergeant Zastrow, of the 2nd Airship Battalion, at Reinickendorf, for another gallant deed in the air. In September last Z. 5 had completed a trip of five hours in very stormy weather, and was prevented from landing by the gale. After much manoeuvring the vessel was brought close enough to the ground for the landing crew to catch hold of the ropes. At that instant a sudden gust forced the dirigible up again, two of the soldiers being dragged up also. Zastrow, noticing the men's terrible plight, climbed out of the car, and at a height of 200 metres hanging downwards, he caught hold of one of the men at the very second he threatened to drop, and was hauled back with him until ready hands lifted his heavy burden into the car. Then Zastrow again started out, but unfortunately the second man was so exhausted that he let go and dropped just before the young sergeant got to him.

The new seaplane station at Nordholz, near Cuxhaven, is to be opened in the spring; the barracks are to be completed by April, and will house 600 men of the Marine Airship Detachment at Cuxhaven. One of the new Zeppelins will be finished in time for the opening.—B.

East Africa.

A waterplane is to be sent to Dar-es-Salaam in German East Africa, for the agricultural show held there in the summer. The German Colonial Department and National Aviation Fund are both interested in the project.—B.

ITALY

On the 25th ult., at Bracciano, the latest military dirigible, M. III, accomplished a satisfactory first flight, carrying nine persons. It is hoped that, as the result of several late modifications, she will be an improvement on any other vessel built in Italy.

During the rigid weather military aviation school work, by order from headquarters, is to be suspended for one month from date of order. The critics state that financial conditions, not those of the weather, prompted this move. It is due to the writer's sense of fairness to state that such heavy snow and intense cold would be ample excuse for a civilian school to shut down temporarily.

Several officer-aviators and many friends gave Manissero an emotional welcome on his return to Turin from Buc, where he succeeded in "looping" before any other Italian.—T. S. HARVEY.

The path of military aviation is apparently a thorny one. Following the example of England and France, Italy is now passing along the way of pricks and kicks which leads to that halting-place where there is much sweeping, garnishing, gnashing of teeth, and other disagreeable processes. So much is clear even with our limited knowledge of Italian after a perusal of certain sporting and daily journals which recently reached

this office. Too little discipline and too little support given to national constructors are the accusations made against the powers that control military flying in that country, with what truth, as outsiders, we are unable to say.

Anyway, an inquiry recently conducted by His Excellency General Brusati may safely be left to put the first matter right if needed, but the question of orders for machines and the spending of some four millions of francs offered by the National Airfleet Fund seems to be likely, under the stimulus of an energetic sporting Press, to become a rock whereupon much might be wrecked.

The "Stampa Sportiva," perhaps the most important weekly illustrated dealing with such matters, which is printed in Turin—the hub of aviation in Italy—appears to have thrown down the glove in last week's issue. The editor, after recalling many fine deeds and promises, in the last of several milder articles writes as follows:—"With the same enthusiasm with which in the past we have praised their good efforts, henceforth we shall openly combat anything done which is not to the glorification, decorum, and progress of the national industry."

A law to regulate various matters connected with national aerial defence work, which we understand touches upon the disposal of the large sum mentioned above, is shortly to be presented to Parliament. Curiously enough, the doings of the Admiralty seem to be approved of, though we are told by our correspondents in Italy that the navy flies almost exclusively foreign-built seaplanes.—ROMULUS.

The Marquis de Lareinty Tholozan, putting one of the new type Maurice Farman machines through its tests for the Italian Government, and carrying the regulation useful load of 275 kilogrammes (620 lbs.), reached a speed of 112 kms.p.h. (67 m.p.h.), and rose to 1,000 metres (3,250 ft.) in 8 mins. 45 secs.

RUSSIA.

M. Charles Rivet writes in "Le Temps" an interesting article on aviation in Russia. He points out the care with which the authorities have always treated Russian aviation, and that it has been sending commissions every year, chiefly to France, to study the progress made elsewhere. A very great amount of technical research work has been carried out in Russia, especially at the laboratory at Kutchino. Military aviation was under the control of one chief, and as the first selection was good, progress was rapid. Since the year 1912 effective aeroplanes for war have been six times increased, with the result that at the present moment there are 300 machines of various types, but chiefly Nieuports, either actually in hand or shortly to be delivered, and orders have been given out which would have increased this number to about 500 in the course of a few months. A few weeks ago orders for future delivery for 353 new machines were given out, among which the Morane-Saulnier and Deperdussin monoplanes figure largely; but, owing to differences between the Directorate of Aviation on the General Staff and the Minister of War, these orders have been temporarily suspended, and the command of the aviation service which was held by General Chichkevitch has been withdrawn from him, and its control has been handed over from the

General Staff to the administration of the military engineers—Heaven help it! Under the present arrangement, the General Staff will control the personnel and the engineers will control the technical portion, a division of responsibility which will doubtless lead to hopeless confusion and disaster. There are at the present moment 25 escadrilles of military aeroplanes, to which 15 are shortly to be added if the engineers do not upset the present arrangements of the General Staff.

M. Sikorsky, it is understood, has been taken up by the military authorities, and so has been enabled to carry out studies of aviation which have produced the enormous machines bearing his name.

At the present moment the Nieuport type of monoplane is in most favour, but the Deperdussin runs it close. There is undoubtedly a great market in Russia for highly efficient aeroplanes such as those produced in this country, but British constructors wishing to do business in Russia must remember that it is necessary to increase quotations which would be given in this country by anything between 25 and 50 per cent., as this amount will be needed as "baksheesh" among various officials, high and low. If it is only a matter of selling a sample machine or so, only minor officials need be bought; but when it comes to orders for large quantities, it is a recognised thing that the highest official with whom one has dealings draws the highest percentage.

SPAIN.

On Monday, Jan. 26th, at 11.30, Lieut. Maxime Ramon, son of the Spanish General Ramon, was killed at the aerodrome at Quatro-Vientos, near Madrid. He was flying an 80-h.p. Bristol tractor biplane, and had descended from a considerable altitude when, on touching the ground, he turned the machine over and was killed on the spot.

TURKEY.

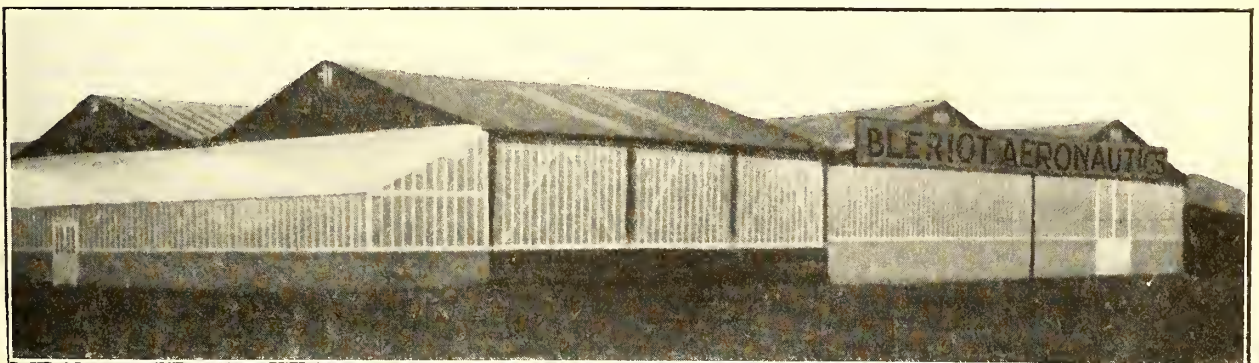
An active Military Aviation School is in course of formation at San Stefano, where Captain Fessah Bey, one of the most skilful Ottoman pilots, will take command. Captain Fessah distinguished himself as a pilot in the late war.

BULGARIA.

It is pointed out by a French pilot recently returned from the Near East that Bulgaria is very well worth cultivating by aeroplane manufacturers. In spite of the country being chiefly mountainous, there are large plains which are favourable for flying, especially along the Roumanian frontier, and that, further, as Bulgaria has a coast-line of 120 miles on the Black Sea, she is certain to employ seaplanes.

U.S.A.

The board of Naval officers recently convened to consider the whole question of naval aeronautics has recommended that every large ship of war should be provided with an aeroplane for scouting purposes; also that, later on, special ships should be constructed for aeronautical work with the fleet. The report points out the fundamental mistake of basing aeronautical development upon the coast defence idea, and states that the aeronautical service will prove efficient only when it can operate with a fleet which is at a distance from home bases.



The new Blériot works at Brooklands. One side and a half of the square block of sheds recently taken over and made into workshops under Mr. Alexander Davidson's management.

FOREIGN NOTES.

France.

M. René Labouret, who performed so excellently in the St. Malo-Jersey and back competition, is taking an Astra-Nieuport 100-h.p. biplane to Mentone. It is hoped that he will have rather better luck than he had at the Monaco meeting.

A French contemporary, wishing to vindicate looping in general, and the performances of M. Chanteloup in particular, protests that they are not the vulgar exercises of the audacious acrobat, as some people seem to believe, but are pure scientific demonstrations in honour of French aviation. If this is the last ditch of the French aviation industry, it has poor prospects in France.

The aerial "rally" at Monte Carlo promises to bring a very distinguished concourse of aviators together. It is understood that M. Gilbert will participate in the function on his record-breaking Deperdussin monocoque. One can imagine the two-mile-a-minute machine endeavouring to land on the quay at Monaco, the longest flat stretch in the Principality.

It is said that while the present uproar lasts in French military aviation circles, one of the most prominent constructors in France proposes to shut up shop and undertake a grand tour of exhibitions accompanied by two of his pilots.

On the 29th, M. Roland Garros started to fly from Bordeaux to the aerodrome at Merignac (Issartier), accompanied by M. André Gounouilhou as passenger. When within a mile of their destination the oil ran short, and M. Garros had to land in the open country. Leaving his machine, he tramped to Merignac, returning in a second monoplane with a supply of oil for his first machine, which he found surrounded by a crowd of natives, and successively flew the two monoplanes to the aerodrome.

M. Guillaux, suspended for ten years for malpractices in the Pommery Cup competition, has now taken unto himself a Blériot looping machine. Translated as literally as possible his first efforts are thus described in the French Press: "Guillaux took himself in hands the conduct of the apparatus, delivering himself to a veritable orgy of fool flights, bouching more than fifteen times and returning himself in all senses."

M. Guillaux, whose ten years' suspension for malpractices seems to weigh but little upon his mind, has left France via Marseilles for a grand tour in Australia, where he proposes to "boucle-the-boucle" in all the big cities. He also wishes to fly from Sydney to Melbourne. He does not propose to return to France until next July.

M. Garaix, on January 31st, flying in a Schmitt biplane with six passengers, reached a height of 6,000 ft. This constitutes yet another World's Record.

It is said that the firm of Clement Bayard are more than usually busy building dirigibles, two airships being in course of construction for the French Government, one for Russia, and one for an unspecified purpose. The ships are each to be fitted with four 250-h.p. motors, the nacelles are to be specially dismountable, and a gun platform is to be erected on the top of the envelopes. The most efficient form of wireless apparatus will also be installed and every effort will be made to make the ships the most powerful aerial cruisers "afloat." The capacity of the envelopes is said to be 20,000 cubic metres.

M. Pégoud has been made a "laureate" of the French Academy of Sport in recognition of his services to the sporting side of flying. He has been placed over the head of M. Carpentier the champion boxer!

M. Levasseur put an Astra-Nieuport seaplane through part of its reception tests for the French navy at San Raphael on the 29th ult. Much satisfactory work is progressing there with the naval machines.

Germany.

In accord with the wishes of the German Aeronautical Society the aeroplane firms have adopted letters of identification for their machines. The following have been registered: Wright Co., "W"; Rumplers, "R"; Ago Co., "A"; Aviatik Co., "A.K."; Gotha Co., "G"; Sachsen-Biplane, "S.L."; Luftfahrzeug Co., "L.F.G." and so forth.

The official statistics of Germany's airship and flying-machine imports and exports for the year 1913 make interesting reading. The "dirigible air-vehicles," to give them their official designation, show both import and export to have risen; 21 such were brought into the country, their value being 261,000 marks,

against 15, totalling 292,000 marks, in 1912. Germany supplied foreign countries with 36, amounting to 1,340,000 marks, in 1913, and 25 in 1912.

The Grand Duchess Anastasia of Mecklenburg-Schwerin accompanied Maçon on a waterplane flight from Nice to Beaulieu, St. Jean and back, the trip lasting nearly half an hour. H.R.H., who is the mother of the German Crown Princess, is an excellent sportswoman, and was a pioneer of cycling, lawn-tennis, and motoring in society on the Continent.

Italy.

A monument in memory of M. Chavez, who was fatally injured when landing after making his historic flight across the Alps, is to be erected at Domodossola next April. Representatives of all the aero clubs of Europe will be present at the inauguration.

On the 29th ult. Emilio Pensuti, in spite of the intense cold, climbed up to 4,080 metres (13,300 ft.) above sea-level at Malpensa on an 80-h.p. Caproni, beating the Italian height record. His fingers got so cold that he had to plane down without the motor, as he could no longer manage his throttle-lever. Pensuti will be remembered as having flown the fast Friuli mono. at Pordenone some years back, making a cross-country speed record, and seems likely to become an unusually fine pilot.—T. S. HARVEY.

Switzerland.

Boucling is even invading the peaceful republic of Switzerland. M. Montmain proposes to perform at Charmilles, Geneva on February 8th.

The pilots, Luguin and Montalvan, are applying for permission from the Swiss Federal Railway Department for permission to start an aerial service over Lake Lemman. The service is to run regularly between April 1st and November 30th.

Flights will only take place in winter when the number of passengers and the weather warrant it. A Henry and a Maurice Farman waterplane are to be used, both of them three-seaters. The proposal to carry mails is also under discussion.

M. Parmelin, the chief pilot of the Deperdussin School at Reims, has gone to Geneva with the intention of attempting to fly over Mont Blanc. The machine to be used is a Deperdussin monoplane (80-h.p. Le Rhone), and the start will be made at Collex-Bossy. M. Parmelin proposes to cross the actual summit of the mountain, and travel on to Turin, a distance of 250 kms.

Roumania.

M. Coanda, chief designer of the Bristol Company, has been awarded the Cross of Merit by the Government of Roumania for his participation in the construction of the Bristol biplanes.

Egypt.

On January 29, Jules Védrières had an interview with Prince Aziz, the erstwhile Commandant of the Kirk-Kilissé Cavalry, and some of his Staff. There were no other Europeans present; and, contrary to custom, the presentation was not made by a French official.

M. Marc Pourpe reached Luxor on the 26th.

On Friday M. Marc Pourpe left Luxor for Maghamadi, on his way back to Cairo. He passed the Tombs of the Kings at a height of 300 metres.

On the 30th ult. Olivier smashed his Farman up at Cairo, fortunately without injuring his trusting passenger. M. Bonnier has reached Ismailia after a good voyage from Cairo. He is to take part in a fête organised in honour of M. de Lesseps, son of the Engineer of the Suez Canal. He has since made several flights across the "desert," landing on one occasion on an oasis. Among other passengers he has taken up Prince d'Arenberg and Sir Wm. Gastin.

U. S. A.

The Aero Club of America has an imagination which makes that of a mere Lord Northcliffe look antiquated. It has sanctioned a "Round-The-World aeroplane race for a first prize of £20,000. The race is to start from San Francisco—in connection with the exhibition—during May, 1915. The voyage must be completed within 90 days. Any type of motor-driven aircraft may compete. £30,000 has already been subscribed for prize money. Name the stake-holder, please!

A large aero-skimmer or gliding boat has been delivered to Mr. Robert J. Collier by the Sloane Aeroplane Company of New York. The new craft was designed by John E. Sloane

with the assistance of Frank Coffyn. It seats six people and is propelled by a 220-h.p. 20-cylinder air-cooled Anzani motor, driving a four-bladed 8-foot diameter air propeller. In general appearance the hull resembles a huge bob-sled, and as the boat makes better than train speed and is far more comfortable, Mr. Collier intends to use it for travelling to and from New York, as well as for general sporting and pleasure use.

The Sloane Aeroplane Company already has several orders for these machines, and it is expected that there will be a number of aero-skimmers built during the spring for pleasure and commercial use, for owing to their high speed and shallow draught they are invaluable for commercial delivery on shallow streams and in the tropics. As these gliding boats will be built in various sizes and powers the leading yacht clubs are arranging to hold special races for them, and it is probable that before long aero skimmers will have a more general use than motor-boats.

Mr. Miller Reese Hutchison, E.E., Chief Engineer to Thomas A. Edison, was recently elected Vice-President of the Sloane Aeroplane Company, of New York. He is the first noted engineer engaging in the manufacture of aeroplanes in the United States, and he hopes to put aviation on a more scientific basis. Mr. John E. Sloane, the President of the Sloane Aeroplane Company, realising the demand for flying boats and aeroplanes, has enlarged his manufacturing facilities, and, with Mr. Walter H. Phipps, a well-known designer, is endeavouring to produce the most efficient flying boats and aeroplanes. They are designing an original monoplane, which is expected to be one of the most efficient in the world. The Sloane Land School, to open at Hempstead in April with John Guy Gilpatrick in charge, promises to be even more successful than in previous years, and already a number of pupils have enrolled. The company will also open a flying-boat school in the vicinity of New York.

The 1914 Thomas flying-boat has many new features in design and construction. During the past year several methods of construction were experimented. First, the all-wood hull was tried and discarded, because of the water absorbed by the planking. It was found that the all-wood hull would increase in weight over a hundred pounds after being in use a couple of weeks. Next, a wooden hull was tried with metal bottom. This was found to have advantages over the all-wood hull, but still the sides absorbed a great deal of water. Finally, the hull was built of wood and then entirely covered with metal. This boat was put through a number of tests during the summer and fall, and, in efficiency both in the water and air, more than fulfilled its designer's expectations. It has been timed to leave the water in 8 secs. from the time the engine was started, and to have a speed of over 65 m.p.h. in the air. The 1914 model, contrary to the usual practice in flying-boat construction of building over frames and fitting in braces and centreboard last, is built from the keel up just as all boats are built.

The general specifications of the Thomas boat are:—Length over all, 25 ft. 5 in.; span of top plane, 36 ft. 4 in.; span of lower plane, 28 ft. 4 in.; chord, 5 ft.; gap, 68 in.; total area of main planes, 310 sq. ft.; length of hull, 23 ft.; top beam, 40 in.; bottom beam, 34½ in.; maximum depth, 36 in.

Power plane, Austro-Daimler, 90 h.p.

Total weight of flying boat, empty, 1,275 lbs.

In the monoplane flying boat designed by Mr. Glenn Curtiss for Mr. Raymond V. Morris, of New Haven, is suggested the breadth of the field Mr. Curtiss expects to cover with water-flying machines during the coming season. To date we have seen definite announcements of four quite distinct models. First, the new four-passenger mahogany boat; second, the O.W.L. (amphibian) type for naval use; third, the tandem-seated, straight-sided, ocean-going naval type; fourth, this little single-seated speed machine. In Mr. Morris' little racer there is not a single stick that matches up with anything previously turned out by the Curtiss plant. The hull differs in design and construction; the wings differ in curve, in shape, in construction; even the radiator and propeller were designed specially. Only the Model O.X. Curtiss motor is the same in all.

The loading is about 10 lbs. to the square foot, for, with pilot and fuel the machine weighs very nearly 1,200 lbs., while the lifting surface is almost exactly 120 square feet. Mr. Morris tried out the machine under every disadvantage during the blizzard weather of early January. Mist and spray turned im-

mediately to ice, but the monoplane flew, and flew fast. It jumped off the water before the wind, just where the operator did not want to rise with an untried machine and unfamiliar controls. Mr. Morris made four flights that day and several more later in the week. His actual speed was not determined, for it was too cold to put out timers, but it is described as looking like "a rocket in a street car track."

In form the hull represents a cigar. Its dimensions are:—Length, 22 ft.; beam, 30 in.; depth, 36 in. The bottom, as far back as the step, is the new double Vee type, described on the new navy boats, C.3, C.4., C.5. The bow is pointed instead of square. The frame is a basket-work of ash strips, the ribs are carried completely around the longitudinal members. Around the frame is wound diagonally a first skin of 3-32 in. mahogany planking. This is covered with heavy Sea Island cotton set in marine glue, and over this is another skin of 3-32 in. mahogany plank, laid longitudinally. Not only does the hull look like a cigar, but it is wrapped like one. Two holes are cut in the tube to permit the entrance of the pilot and one passenger. The pilot's seat is low, to give him every protection from the wind, and to bring the shoulder yokes at the greatest diameter of the hull.

The wings are set 40 inches above the hull, attached at the top to the welded steel structure supporting the engine bed, and braced below by struts to a cross-beam, which carries the balancing pontoons. The wings are swept back at an angle of 7 degrees in an easy curve to the points forming the trailing balanced ailerons. The rib curve is original, though in some measure similar to that of the "B.E. 2."

The span from tip to tip of ailerons is 34 feet. The spread of the supporting surface is 28 feet. For 20 feet in the centre the chord is 60 inches, while for four feet at each end the main surface is practically triangular. Rudder, elevators, and rear stabilising surfaces follow the lines of those used in standard Curtiss flying boats, modified in size to fit this smaller machine. Mr. Morris is sending the machine to St. Petersburg, Florida, to train for the flying-boat speed contests.

Hydro-aviation is the first programmed attraction at the Panama-Pacific International Exposition at San Francisco. A number of well-known aviators will make flights every Sunday afternoon from the Exposition grounds, which are on the shore of the Bay of San Francisco, and a series of events has been prepared, including a 25-mile race, bomb dropping contests, a relay race, and an aerial carnival, in which all of the flying-boats and hydro-aeroplanes will participate. Among the aviators will be Roy Francis, one of the two to finish the Great Lakes contest for flying-boats; Robert Fowler, the first aviator to fly across the American Continent and also the only aviator to fly across the Isthmus of Panama; William Blakley, of San Francisco, just returned from a tour of Canada and the North-West; Silas Christofferson, the well-known flier and flying-boat builder, in a new speed machine; Harry Christofferson, in a passenger carrying waterplane; Otto Rabitski, a former pupil of the Blériot and Christofferson schools of aviation, in a Curtiss type hydro. Negotiations are also under way for Adolph G. Sutro, the young San Francisco aviator, with his monster hydro, the largest in America, with which he has beaten four world records, namely, the three-man (self and two passengers) carrying records for weight lifting, distance, speed and altitude. Others who may appear are Frank Bryant, Alys McKeys, and, possibly, Florence Seidel, the clever pilot from Southern California.

A new aviation centre is being formed for New York at Canarsie, Long Island. Eight acres of sandy beach and a strip of water-front have been leased for the purpose.

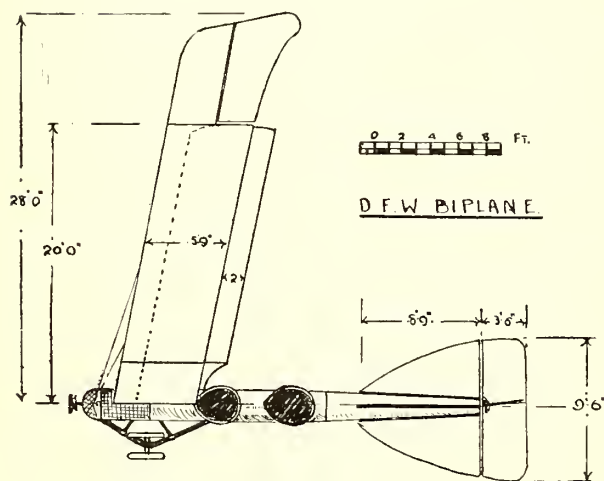
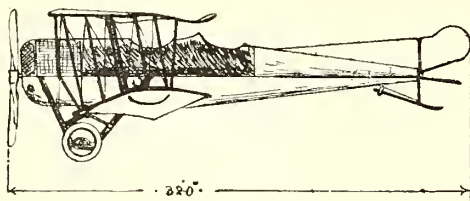
West Indies.

It is reported from Guadeloupe that the French aviator Reyboud on Saturday, 24th, fell on the roof of an ice factory and was fatally injured.

Chili.

For some time past the proposition of the Chilean aviator Señor Figueroa to attempt to fly across the Andes into Argentina has been a topic of interest in South America, but hitherto nothing has been done owing to the low power of the machine in possession of the aviator. Recently, however, the Chilean people, who are very enthusiastic about the proposed flight, have opened a national subscription, and it is hoped very shortly to purchase a machine of sufficient power to attempt the daring feat.

The D. F. W. Biplane.



To those familiar with the ordinary run of British or French aeroplane the outlines of the D.F.W. biplane at Brooklands appear somewhat strange, and are apt to create a certain amount of prejudice. This changes to admiration on a quite casual inspection, for the workmanship is exquisite and an immense forethought has been expended in the detail design of this machine.

The general appearance of the D.F.W. will be familiar to all readers of *THE AEROPLANE* from the photographs already published. It may be briefly described as a tractor biplane with staggered and swept back wings, of which upper and lower planes proper have the same span, the upper plane being provided with a pair of extensions cut back to the rear spar, to which are hinged a large pair of balanced ailerons. These ailerons have a reversed camber, i.e., are hollow above, and are normally at a considerable negative angle. The upper plane has no dihedral, while the lower has about 4 degrees.

To this arrangement, of negative tips to the upper plane and a considerable dihedral on the lower, is attributed a large degree of automatic stability—a claim which appears to be well founded.

Mounted above the lower plane and supported by a system of steel tubes connected to both upper and lower planes is the fuselage. This is essentially a triangular section girder whose longitudinals are each a large diameter steel tube. On these are mounted a series of three-ply distance pieces which act both

as struts and as formers to maintain the outline of the covering. This construction is clearly shown in one of the accompanying sketches.

At the very front of this fuselage is a honeycomb radiator, followed by the motor, a 100-h.p. 6-cylinder Mercédès. Then come fuel tanks with $7\frac{1}{2}$ hours capacity, passenger's seat, pilot's seat, empennage and tail skid. The seating accommodation can only be described as luxurious. So excellently has the upholstery been carried out that it would be difficult to find anything on which one could not bump one's head with impunity. Receptacles for pencil and paper, and even for liquid refreshment, or, one is told, for petrol and sponge for goggle-cleaning, are provided.

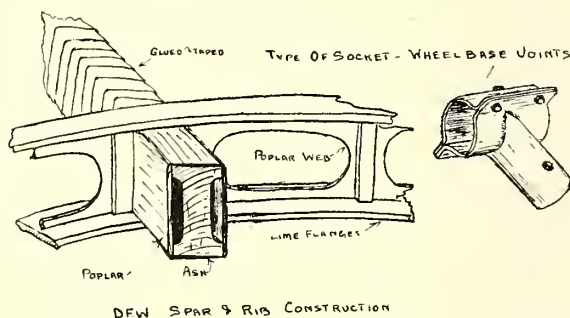
Controls are fitted for both seats, these being of the normal type with a wheel for lateral control. The pilot's seat has, in addition, engine controls, a very completely fitted instrument board and a hand-wheel outside the fuselage, but within reach, whereby the angle of the tail plane may be varied.

Both seats are behind the trailing edge of the lower plane, which, in addition, is cut back at the body, giving a view vertically downwards in both seats. In other directions the arc of vision is unusually wide.

The tail plane, whose angle can be varied, as has been stated, has hinged to it an undivided elevator flap, the plan view of these two together forming a semi-ellipse. Above the tail plane is a long vertical fin which, in its turn, carries the rudder. All these surfaces, as well as the ailerons, are built with frames of steel tube, and the controls operate through substantial steel levers of oval section built into the frames. Below the tail plane is fixed a simple sprung tail skid.

To the two top longitudinals of the fuselage are fixed the main wheel-base members, these consisting of a pair of widely opened U's of stout steel tube, supported laterally and longitudinally by a very flat pyramid of steel tubes, whose apex is fixed to the point of junction of the lower front spar and the bottom fuselage longitudinal.

In the bottom of each U a short axle carrying two wheels is suspended on rubber shock absorbers, much as in the well-

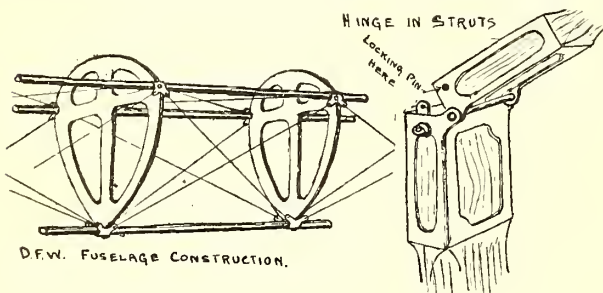


known Farman arrangement. Radius rods are, however, supported by short lengths of stranded cable. No skids are used.

The fuselage is completely covered. On top, the excellent entry formed by the radiator is carried on by a bonnet of wire gauze and a cowl of black enamelled aluminium, extending to the rear of the pilot's seat. Both these are kept in place by spring catches and can be easily removed for access to engine, tanks and controls. From the end of the latter to the rudder post runs a permanent aluminium cover, protected by doped fabric and kept in shape by the formers already referred to.

At the bottom, under the engine, aluminium is used for covering, the remainder of the fuselage being covered in fabric supported again by the formers and by longitudinal wires fixed to their edges.

The wing construction is normal, the spars being of ash, channelled out, with poplar side pieces, the whole being glued, taped, and finally varnished. The spars are of generous proportions, and, like the remainder of this machine, excellently made. The struts between the planes—there are three sets of these a side—are jointed in the centre by a substantial steel hinge, which is locked in position by a steel pin. After disconnecting the planes from the centre section, by removing the



locking pins the struts may be folded up (their ends being fitted with universal joints), and the planes laid one on the other for packing, without disturbing any of the interplane wiring whatever, so securing that the planes may be re-erected without requiring to be trued up.

The whole of the wing bracing is of stranded steel cable fitted with all steel strainers. All control cables are of notably generous proportions, and wherever there is risk of wires chafing fibrous bushings are provided. The aileron pulleys are shrouded with this material, and the wing cross-bracing wires are slipped into slots in little fibre balls where they intersect.

In the air the machine is noticeably steady and has a good gliding angle, and the motor has a bark cheerful to hear. Her speed is given at 68 m.p.h.—she is certainly not slow—and the climbing rate fully loaded as 300 ft. per minute.

The principal dimensions are:—Span, top 56 ft., bottom 40 ft.; chord, both, 5 ft. 9 in.; stagger, 2 ft.

Total area:—Planes 520 sq. ft., tail plane 70 sq. ft., elevator 33 sq. ft., rudder 9 sq. ft., propeller diameter 10 ft.

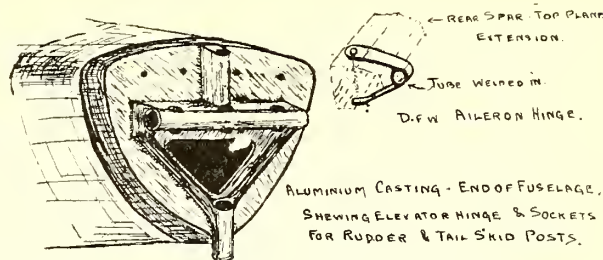
Flying at Brooklands.

Again there has been an active week at Brooklands. On Monday, Mr. Barnwell took the second Vickers gun-carrier, 100-h.p. Gnome, to Farnborough, and passed all the acceptance tests except the rolling, in which by ill-luck the machine struck a large obstacle and damaged the chassis. On Tuesday, Mr. Raynham took a passenger to Hendon and back, and the D. F. W. biplane was also out. On Wednesday, the D. F. W. was out again, and Mr. Waterfall was flying very well on the Martinsyde for 20 minutes.

Mr. Hamel arrived from Hendon so as to be near Windsor for his command performance before the King next day, and brought Mr. Whittaker with him as passenger. After giving an exhibition of looping he found that the engine was shaking badly, and on its being taken down it was discovered that the front end of the crankshaft was broken, presumably as the result of his semi-somersault on the ground some weeks ago, the damage being accelerated by the gyroscopic forces brought into play by continuous looping.

By the way, it is worth noting that Wednesday is half-price day at Brooklands, and the price of admission is then only 6d.

On Thursday morning, as it had been found impossible to replace Mr. Hamel's engine in time, Mr. Raynham took him as passenger on the Avro to Hendon, where he borrowed the Grahame-White Company's Blériot, 80-h.p. Gnome, on which he flew to Windsor and gave an exhibition before the King. This trip to Hendon is only the third occasion on which Mr. Hamel has been a passenger, his previous pilots being Mr. Sopwith and Mr. Grahame-White.



Petrol capacity:—200 litres (45 galls. about) $7\frac{1}{2}$ hrs. Weight, empty, 1,460 lbs; weight, loaded, 2,200 lbs. about.

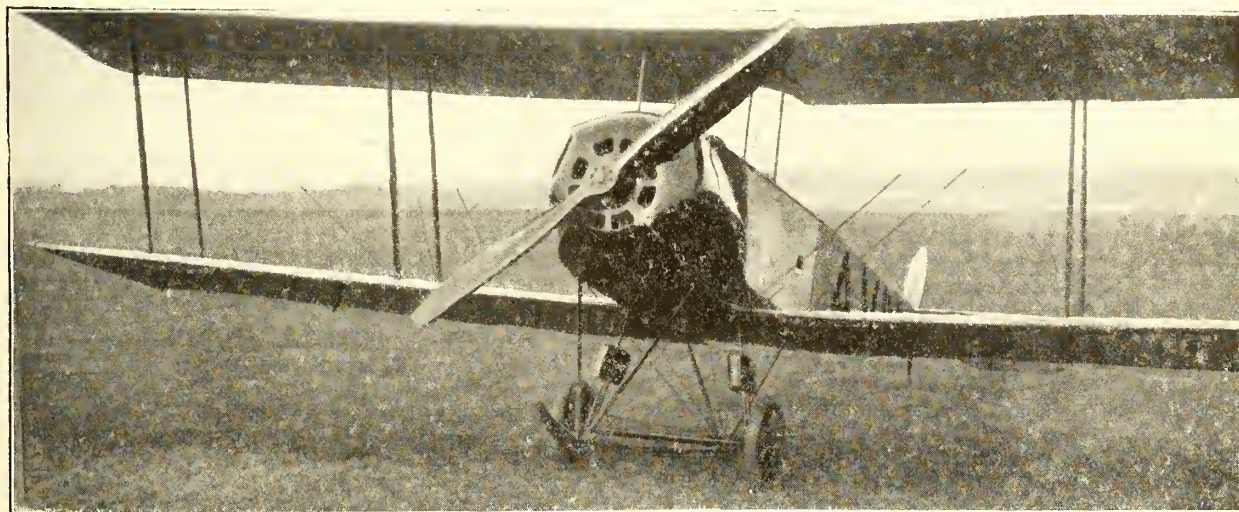
In conclusion the writer has to thank Mr. E. Cecil Kny for affording the opportunity of inspecting the machine and of obtaining the information embodied in this description.—W. H. S.

Returning from Hendon, Mr. Raynham picked up a passenger and flew to Eastchurch, covering the 55 miles in 35 minutes with the wind. Leaving his passenger there, he returned alone, and took 1 hour and 25 minutes. The D. F. W. was out during the day exhibiting its stability. On Friday, Mr. Barnwell was out on a Vickers biplane experimenting in a very gusty wind, and later Mr. Dukinfield Jones made three trips on the Flanders biplane, testing the Isaacson engine which has just been returned from the works.

On Saturday, owing to the strong wind, the Avro was the only machine out, and on Sunday Mr. Raynham again did some fine flying in a very bad wind. The free flight regularly raffled on Sunday afternoons, was won by Mr. Spratt, the R.A.F. pilot, who chivalrously handed over his flight to a lady. Later Mr. Raynham took up Mr. D. O'B. Gill, an engineer from Canada, to 2,000 feet, landing without switching on from over 1,000 feet. Mr. Dukinfield Jones was flying nicely on the Flanders towards evening, the Isaacson engine evidently running very well.

A Sunbeam Success.

The Royal Aircraft Factory have intimated to the Sunbeam Motor Car Co., Ltd., of Wolverhampton, that they are purchasing the 150-h.p. 8-cylinder Sunbeam aviation engine which they have now had on test for several months. This is the first modern British aviation engine purchased by the Royal Aircraft Factory. The Sunbeam Company are naturally proud that an engine of their make should be so honoured, as it is well known that the tests are of an exceedingly severe nature, and one hopes it may continue in the air its triumphs on the bench.



The new pattern cowl of the Avro, 80-h.p. Gnome. On Monday last Mr. Raynham, with Mr. McGeagh-Hurst, on this machine climbed to 5,000 feet in 10 mins., and to 10,500 feet in 25 mins. They took 16 mins. to descend again.

Flying at Hendon.

The weather on Saturday was what sailors call "dirty," and about as uncomfortable for flying as it could well be. M. Louis Noel was first out on the Maurice Farman, and accompanied by a passenger executed a species of wild aerial tango. After a very rough ten minutes' work he landed safely, and M. Marty started out on the Morane (50 le Rhone), to perform his figure in the aerial dance. He taxied out to leeward, turned round more or less head to wind, opened out his engine, got off before reaching his flying speed, and naturally heeled over, touched the ground with his left wing-tip, and turned about a cartwheel and a half, the machine finally pulling up on the left shoulder. M. Marty crawled out of the wreck and collapsed on the ground. M. Louis Noel started off on the Maurice Farman and soon reached the scene of the accident, while the St. John Ambulance men, turning out with the promptness of a fire brigade, were not far behind. It was found, to everybody's relief, that although M. Marty had been very badly shaken and bruised, no bones were broken, and it is merely a question of rest to put the plucky little French boy right. The smash was a very violent one, and he is really to be congratulated on getting off so lightly. One might suggest, however, that a little judicious padding would make the Morane much more comfortable, for there are some very nasty brass stiffeners in the corners of the cockpit which would seriously damage the pilot's head if he chanced to hit one.

As soon as it was ascertained that M. Marty was not seriously injured, Mr. Goodden went up on the Ewen Co.'s Caudron with the new type 45-h.p. Anzani, and made a very fine flight, finishing with a splendidly judged landing. The rest of the afternoon's flying was left to M. Louis Noel, who worked very hard all the afternoon in exceedingly trying weather.

The wind did not moderate on Sunday, and the only machine out was the indefatigable Grahame-White Maurice Farman, piloted in turn by Mr. Claude Grahame-White and M. Louis Noel. Among the visitors were Lady Victoria Percy, Lord Herbert Vane-Tempest, and Mr. Anthony Drexel.

Coming Events at Hendon.

A record list of proposed events has been announced by the London Aerodrome to take place at Hendon during the year. The present winter Saturday race meetings, and the Exhibition and Passengers Flights on Thursdays and Sundays, will continue to be held until the Easter Meeting, and includes the Hendon Meeting on Saturday, February 28th, and the Aero Show Speed Contest on Saturday, March 21st, during the Olympia Aero Show. A Special Meeting will be held on Thursday, March 19th, for the benefit of Marcel Desoutter, the young Hendon aviator who met with an accident in the early part of last year.

The Hendon Aerodrome Dinner and presentation of trophies will take place on Friday, March 20th, at the Royal Automobile Club.

The Summer Racing Season will be inaugurated during the Easter holidays, with the Seventh London Aviation Meeting, which will cover five days, from Thursday, April 9th, to Easter Monday, April 13th, inclusive. Several important contests are to take place during the meeting, including a Grand Speed Handicap for the Barclay Walker Trophy. During the summer season, from April 16th to October 29th, a flying race will be held every Thursday afternoon, in addition to the regular Saturday contests. The Thursday meetings comprise many interesting competitions and races, including bomb-dropping, passenger carrying, quick-starting and alighting, team races, altitude contests, and speed handicaps.

The weekly Saturday race meetings, throughout the summer, cover many interesting fixtures and include St. George's Meeting, April 25th, the Entente Cordiale Meeting, June 20th, Ladies' Day, July 4th, the Blériot Meeting on July 25th—the fifth anniversary of the first Cross-Channel Flight, Autumn Meeting, September 12th, and the Colonial Meeting, September 19th.

The Hendon-Paris-Hendon Race has been provisionally fixed for Saturday, May 9th. It is proposed that the competitors shall leave Hendon in the early morning, in the order of their handicap times, and after making an hour's stop in Paris, the winners are expected to arrive back at Hendon about 4 p.m.

This will be followed by another important race on Saturday, May 23rd—the Aerial Derby—round London for the "Daily Mail" Gold Cup. This year's contest will, it is believed, attract a record number of entries, following, as it does, the Hendon-Paris-Hendon Race, in connection with which at least ten famous Continental airmen will visit this country.

The Eighth London Aviation Meeting will be held during the Whitsun Holidays from Saturday, May 30th, to Whit Monday, June 1st. Among the events to be contested during this meeting is the Cross Country Race for the Giesler Trophy, which was won last year by M. Brindejone des Moulinais. The Anglo-American Peace Centenary will be celebrated at Hendon by an Anglo-American Meeting, extending over four days, from Thursday, June 11th, when the Meeting will open with an Aerial Fête and Battle of Flowers. On Saturday, June 13th, an important speed contest will take place for the Anglo-American Trophy.

Another Hendon-Brighton-Hendon Race will be held on Saturday, July 18th, and it has been decided to make this contest an annual event. Illuminated Night Flying and Firework Displays will take place on Thursday, April 23rd, Thursday, September 17th, and Thursday, November 5th. Another Aerial Fête and Battle of Flowers will be held on Thursday afternoon, August 20th.

During the year a number of new events will be arranged, the dates for which have not yet been fixed. These include an All-British Meeting, the races being open only to machines that are of all-British construction fitted with British engines and piloted by British aviators. Special days are to be fixed for County Meetings in connection with the various County Associations in London; these will probably include a Lancashire Meeting, a Yorkshire Meeting, and a Devonshire Meeting. It has been suggested that a trophy should be offered for a contest—Oxford v. Cambridge—and it is hoped that teams will be arranged to represent the two Universities.

An Eight Days' International Air Tournament is to be held at Hendon during the summer season and will include various contests for teams representing Great Britain, France, U. S. A., and Germany. It is proposed that other meetings should be held during the season to which Continental aerodromes will be invited to send representative teams to compete against a team of Hendon pilots. Other events will include a Model Aeroplane Competition, a London Day, Territorial Meeting, Public Schools' Meeting, a Children's Day, City Meeting, the "Motor Show" Speed Contest, and further demonstrations of "looping the loop" and upside-down flying.

The Winter Season will be inaugurated on November 7th with the First Winter Meeting, after which flying races will be held every Saturday, Speed Tests every Thursday, and Exhibition and Passenger Flights every Sunday afternoon throughout the Winter Season.

Irish Fabric.

It is, of course, an axiom that the best linen in the world is made in the North of Ireland, and the district immediately round Belfast is the most famous for linen products. Also it is now fairly well recognised that linen fabric is the only reliable fabric for use on aeroplanes, as it does not crack or rot as cotton fabric does when doped.

One of the most experienced linen manufacturing firms in the North of Ireland is the Ards Weaving Co., Ltd., of Newtownards, Co. Down, Ireland, and Mr. Webb, the chief of that firm, writes that he is considering the question of producing a range of aeroplane fabrics. The chief difficulty apparently at the moment is that every constructor uses a different cloth and has different ideas on the subject. Mr. Webb tells us that he recently offered a sample of cloth to one aeroplane firm who replied that they required it half an ounce lighter per square yard, while another firm thought the same cloth was rather too light.

Mr. Webb suggests, however, that if aeroplane firms would be good enough to send him a sample of the kind of cloth they require, he will be glad to quote prices which, as a manufacturer, he feels sure will compete favourably with those quoted by any other firm. Should his prices prove satisfactory, he is quite prepared to manufacture special fabric in comparatively small quantities of say ten pieces of about 90 yards each. Thus each firm can ensure having exactly the weight and strength of fabric its management requires.

The Late Mr. G. L. Temple.

The inquest on the late Mr. George Lee Temple was held on January 29th. The medical evidence given by Dr. A. B. Leaky, after a post-mortem examination, showed that Mr. Temple's lungs were completely collapsed, that his heart was defective, and that he had an abscess in his ear. The doctor thought that he certainly lost consciousness in the air, and though death was due to fracture of the neck, it occurred in such a way that everything pointed to his having been unconscious at the time. The accident was shown to have happened exactly as described in this paper last week.

With reference to the letters advising Mr. Temple to take his machine to Brooklands on a certain day as an attempt might be made to prevent him from flying on the following day at Hendon, it may safely be assumed that these were simply an ill-timed practical joke.

Mr. Temple was buried at Acton Cemetery on Saturday afternoon, and among those present were his friend Mr. J. Lawrence Hall, and Mr. Richard Gates, general manager of the London Aerodrome. Wreaths were sent by pilots, pupils, and mechanics at Hendon, by Mr. Claude Grahame-White, and by the London Aerodrome.

The Late Mr. G. L. Gipps.

The inquest on the late Mr. George Lancelot Gipps, who was killed on Salisbury Plain on January 26th, was held on Wednesday of last week. Owing to Mr. Merriam being too ill to attend, the inquest was adjourned for a month. Mr. David Tod, a pupil at the Bristol School, said that the machine made a sharp left-hand turn at about 40 feet from the ground, lost speed, side-slipped and dived. Before the flight he was told by Mr. Merriam that he was going to take complete control, but he could not say whether he did so during the whole flight. M. Henri Jullerot, manager of the Bristol School, agreed with the details of the accident given by the previous witness. So far as one can learn from those who were there, neither pilot nor passenger was wearing a safety helmet or belt, and from the nature of the accident it appears as if either protection might have saved Mr. Gipps' life, and that both together almost certainly would have done so.

The Olympia Show.

H.M. King George V has graciously extended his patronage to the forthcoming International Aero, Marine and Stationary Engine Exhibition, which is to be held at Olympia in March from the 16th to the 21st inclusive.

Curtiss Engine Experiences.

The experiences of Curtiss Model O-X engines set forth in the following list by Mr. Lyman J. Seely of the Curtiss Company are worth noting.

"C. C. Witmer, in charge of Harold F. McCormick's flying boat, has flown approximately 5,000 miles, with one overhauling of the motor. No breakage.

"L. A. Vilas kept a partial record of his summer's flying from June to October, and he estimates that he flew more than 3,500 miles. So far he has not had occasion to drop the lower half of the crankcase. The motor has not been overhauled since it left the factory. No breakage.

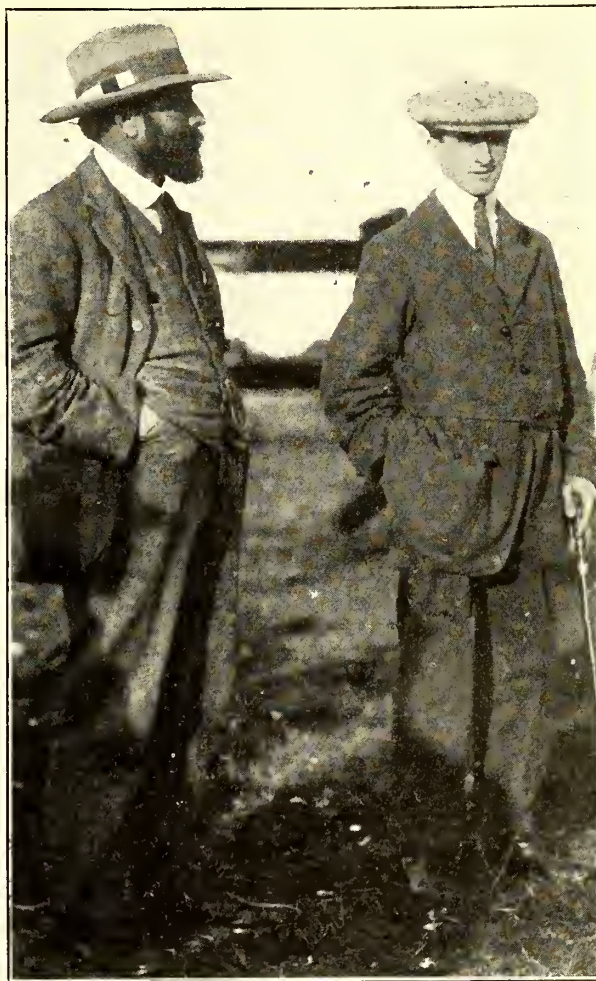
"J. A. D. McCurdy, in charge of George von Utassy's flying boat, flew every fair day from mid-July to mid-October. Estimated mileage 5,000. Broke one bearing cap.

"Glenn L. Martin, who made some very long flights on Lake Michigan during the Great Lakes cruising contest, has used his model O-X since early summer without sending it in for overhauling or reporting any breakage.

"One of the first of the O-X motors was shipped to the U.S. Army aviation camp at San Diego on April 28th. No reports of trouble of any kind have been made to the Curtiss Company. Nor has there been any report of breakage from any of the model O-X Curtiss motors delivered to the U.S. Navy nor from those shipped abroad for Government use.

"William Thaw and W. S. MacGordon, whose flights include an aerial voyage from Newport to New York City, and whose O-X has been in constant and severe use for months, have reported neither breakage nor other trouble. At last reports the motor was said to be 'pulling strong and no trouble at all.'

"William E. Scripps, of Detroit, Barton L. Peck, of Detroit, Ellwood Doherty, of Buffalo, and other users of the model O-X motors, make equally favourable reports.



Our only civilian airship pilots.—On the left, Mr. John L. Weston, the only South African to hold pilot's certificates for all three types of aircraft. On the right, Mr. E. T. Willows

"Messrs. William S. Luckey and Charles F. Niles, winner and second man in the New York Aerial Derby, both used model O-X motors. Luckey's speed over the course averaged better than 70 m.p.h. under conditions worse than ever before recorded as prevailing during a competitive event.

"Thomas Brothers have used their Model O-X for exhibition flying continuously since July 21st. It was examined once but found in perfect condition, and no occasion has yet been found for overhauling it.

"David McCulloch, at Rio Janiero, has flown an O-X motor all summer without any trouble whatever. He has instructed a number of pupils, made numerous exhibition flights, and given the motor the test of hard everyday use.

"All told nearly two score of these motors have seen the hardest sort of aviation work during the past season, and of the lot but three have suffered breakages bad enough to warrant their being sent to the factory for repairs."

Knowledge in Glasgow.

One gathers that Dr. J. G. Gray delivered a lecture last week on gyroscopic stability to the Scottish Aeronautical Society in the Natural Philosophy Institution at Glasgow University. When he reached the subject of aeroplanes he admitted that gyroscopic stabilisers for aeroplanes were a difficult problem complicated by the fact that we must not interfere with the natural stability of the machine. He said that the ideal machine was one which was perfectly stable inherently without gyroscopes, but we were a long way off that yet. One hopes that Dr. Gray, before delivering his next lecture, will familiarise himself with the progress which has been made in the design of inherently stable aeroplanes.

The Week's Work.

Weather Reports for Week Ending February 1st.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Calshot	Dull Calm	Fine Breeze	Fine Wind	Cloudy Wind	Dull Rain (p.m.)	Dull Wind Rain	Bright Wind
Montrose	Gale	Bright	Hazy	Bright	Rain	Gale Rain	---
Hendon	Good	Good	Gusty	Very Gusty	Gale	Gale	Gale
Eastchurch ...	Fog Calm	Fog Calm	Calm	Windy	Windy	Gale	Windy
Brooklands ...	Good	Windy	Fog Wind	Imposs.	Imposs.	Gale	Windy
Salisbury Plain	Good	Fair	Imposs.	Imposs.	Imposs.	Imposs.	---

... School Reports.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Manton and Strange. Pupils with instructors on machine: Messrs. Moore, Parker, Cowley, Eldridge-Green, Grahame, Barrs, Piercy, Lindop, with instructor in passenger seat. Straights alone: Messrs. Norris, Eldridge-Green, Carr. 8's or circles alone: Messrs. Cripps, Lillywhite, Norris, Bjorkland, Carr. Certificates taken: Mr. Edward Fraser Norris (presumably the youngest aviator who now holds a certificate, being 18 years 2 months). Machines in use: Grahame-White propeller biplanes, one Blériot.

At HALL SCHOOL.—Instructor during week: Mr. J. L. Hall. Pupils with instructor on machine: Mr. Gering, studying controls at 1,500 ft. (Avro), Messrs. D'Arcier (strts), Brookes (1) (Caudron). Straights alone: Messrs. Gering, D'Arcier, Brookes. Machines in use: Tractor biplanes, 2 Caudrons, 1 Avro. On Tuesday Mr. Denys Ware left to do an R.F.C. course at Farnborough. On Thursday Mr. Hall gave exhibitions on Avro. Spiral from 2,000 ft., engine cut off. On Saturday, school closed owing to Mr. G. L. Temple's funeral.

At BLÉRIOT SCHOOL.—Instructor during week: Mr. Jules Teulade. After several good flights, Capt. Burdett passed all "certificate" trials except altitude, having to stop on account of late evening and darkness setting. Machines in use: Blériot monoplanes. Mr. E. Gower, practice flights.

At EWEN SCHOOL.—Instructors during week: M. Baumann and Mr. F. W. Goodden. Pupils doing strts or rolling alone: Messrs. Garvin and Bankes-Price. 8's or circles alone: Messrs. Copper and Murray. Certificate taken: Mr. H. A. Cooper. Machines in use: Tractor biplanes, 35-h.p. Caudrons. On Thursday, Mr. F. W. Goodden made several exhibition flights, and on Saturday put up a fine performance in a gale.

Brooklands.—AT VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight and Elsdon. Pupils at work with instructor on machine: Lts Monckton (2), Crosbie (9), Prichard (14), Lee-Jackson (4), Mr. Hurst (8), Mr. Creagh (5), Capt. Ross-Hume (2), (all biplane). Strts or rolling alone: Lt Monckton (1), Mr. Creagh (3). 8's or circles alone: Lt Monckton (5), Mr. Creagh (1). Certificate taken: Lt Monckton on biplane. Machines in use: Three biplanes, one mono.

At BRISTOL SCHOOL: Instructor during week: Mr. Halford. Pupils at work with instructor on machine: A.M. Locker (8 flights) 1½ hrs; Lt Ames (3) 25 mins; Lt Fraser (1) 12 mins; Lt Lawrence (5) 40 mins; Mr. Racine Jacques (1) 9 mins. Straights or rolling alone: A.M. Locker (7) 50 mins; Mr. Racine Jacques (6) 45 mins; Lt Ames (1) 8 mins; Lt Lawrence (2) 18 mins. Eights or circles alone: Mr. Racine Jacques (2) 15 mins; A.M. Locker (2) 17 mins. Machines in use: Three.

Eastchurch.—On Tuesday Mr. Gordon Bell on a Short tractor, 100-h.p. Gnome, after a short test flew to Isle of Grain to deliver it to that station. On Thursday Mr. Raynham arrived at Eastchurch on new type Avro 80-h.p. Gnome. After short rest, went up and showed Avro's slow and high speeds. Though wind was strong he kept as steady and flat as if it had been calm, and after some fancy flying he flew back to Brooklands. Mr. Gordon Bell was up on Saturday on new Short tractor nearly all morning, making long and high flights in very strong wind, with Mr. Fairey as passenger.

Salisbury Plain (BRISTOL SCHOOL).—Instructors during week: Messrs. Jullerot, Merriani, and Voigt. Pupils with instructor on machine: Capt Wallcot (3 flights) 30 mins, Mr. Stutt (4) 35 mins. Straights alone: Mr. Stutt (1) 9 mins; Capt Wallcot (2) 15 mins. Eights or circles alone: Mr. Tod (1) 18 mins. Machines: Three biplanes, one tractor, one mono.

'TABLOID' BRAND ADJUSTABLE HEAD DRESSING, Compressed (Regd. Design)

Cap-like, instantly applied without skill, stays in position, washable.

Aviators should carry it in readiness

10d. each, complete. All Dealers.

BURROUGHS WELLCOME & CO., LONDON

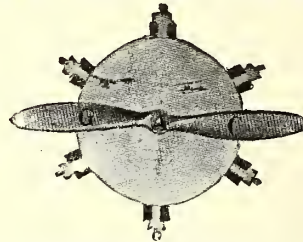


EVERYTHING FOR AVIATION & AVIATOR. "THE LATEST & THE BEST."

Booking

Office for

Passenger



and

Exhibition

Flights.

GENERAL AVIATION CONTRACTORS, Ltd.,
Phone: 280 Gerrard. 30, Regent St., Piccadilly, S.W.
Wire: Santochimo, London
Cables: Aeros, Milan.
and at Milan.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Invention. Particulars, with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

W. H. EWEN SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work, £50. Passenger flights from £2 2s.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to **HALL AVIATION CO.,**
London Aerodrome, N.W.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIÈRE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD.,** 307, Euston Road, London, N.W. Telephone: 912 North. Telegrams: "Avioprop," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.,** 1, Queen Victoria Street, London. Tel. 834 Bank.

ENGINES

NEW Humber, 3-cylinder Aero engine, 28 h.p., Bosch magneto, carburettor, etc., complete, with a set of new cylinders, pistons, rods, etc. List price, £150; will accept £28.—**SPARKS, 30, Kennington Park Road, S.E.**

WANTED, 50-h.p. Gnome in first-class condition.—Send full particulars and price to **THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.**

FOR SALE.—100 h.p. Green, in perfect condition; radiators and all fittings; new counter, etc.—Box 530, c/o **THE AEROPLANE, 166, Piccadilly, W.**

EMPLOYMENT.

WANTED, head draughtsman and two assistant draughtsmen, also foreman metal worker.—**THE CEDRIC LEE COMPANY, Shoreham.**

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—**WULFING, Aeronautical Engineer, 2, Barclay Road, Walham Green Station.**

MISCELLANEOUS.

INVENTORS' ideas developed. Experiments conducted. Models made. Highest skilled mechanics. Low charges. Secrecy guaranteed.—**BRAUN, Engineer, King's Cross.**

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.**

MODELS.

M.S.C. HIGH efficiency carved propellers, 1½d. per inch, up to 10 inches. Postage 1d. We stock everything for models. Send stamp for catalogue.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

T. W. K. CLARKE AND CO.,
HAMPTON WICK, MIDDLESEX.

'Phone—Kingston 869.

Est. 1906.

THE Pioneer Aeroplane Accessory Manufacturers wish you the Compliments of the Season, and offer to you an accurately marked steel rule, gratis, with every order to the value of 5s. Send along your orders, and you will be delighted. Send stamp for lists. Be in time!

S. J. KEMP & Co.,
CROWN WORKS, Kingston-on-Thames.

(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)

Every Requisite for Model Aeroplanes. Send 1d. for List.

Models of Every Description built promptly.

Phone 321 Kingston.

Telegrams "Garage, Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.

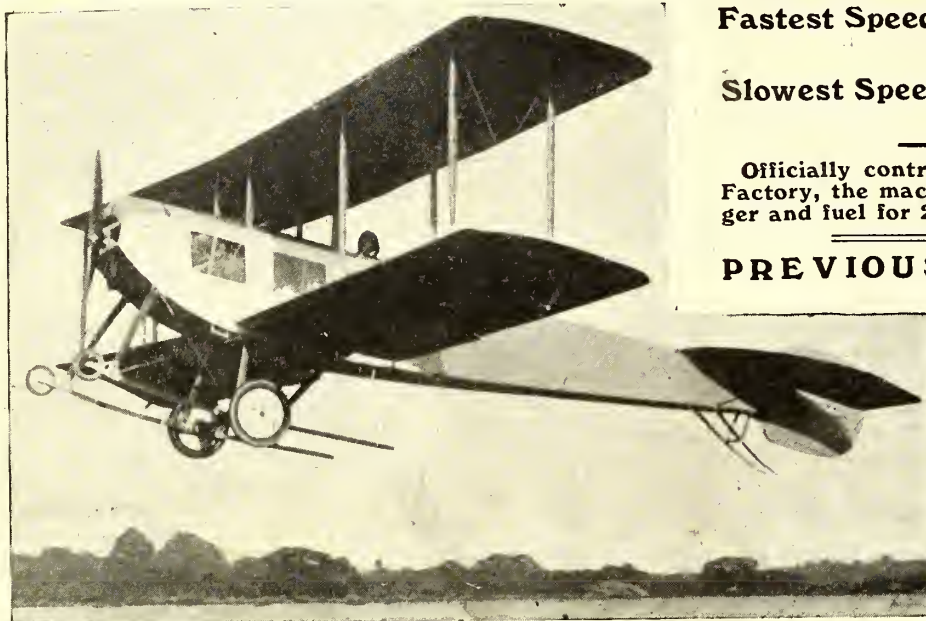
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnôme) beat all **WORLD'S RECORDS FOR EFFICIENCY.**



**Fastest Speed 92 miles
(154 kms.) per hour.**

**Slowest Speed 36.9 miles
(61 kms.) per hour.**

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

PREVIOUS RECORDS on the preceding type of SOPWITH BIPLANE (80 h.p. Gnôme).

British Height Record (Pilot alone) 11,450 ft.

British Height Record (Pilot and 1 Passenger) 12,900 ft.

British Height Record (Pilot and 2 Passengers) .. 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works : **KINGSTON-ON-THAMES.**

Telegrams:
"SOPWITH KINGSTON."

FLYING AT HENDON

SATURDAY NEXT, FEBRUARY 7th, 1914
FEBRUARY MEETING. 16 mile Cross Country Race, at 3 p.m.

COMING EVENTS.

Sat., Feb. 14th. ST. VALENTINE MEETING.

Sat., Feb. 21st. SUBURBAN MEETING.

Sat., Feb. 28th. HENDON MEETING.

Sat., March 7th. MARCH MEETING.

WINTER SEASON—RACES Every SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

Admission, 6d., 1s., 2/6 (Children Half-price).
Motors (including chauffeur), 2/6

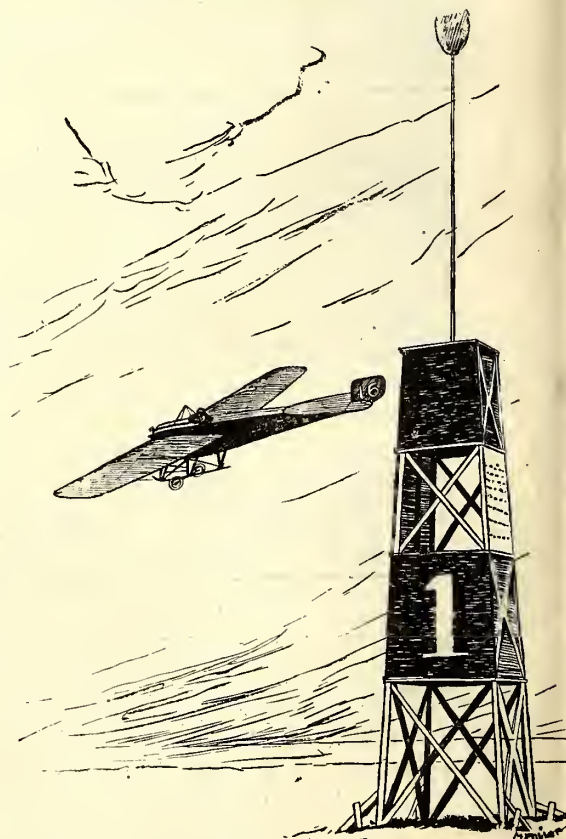
PASSENGER FLIGHTS DAILY FROM £2 2 0.

The London Aerodrome, Hendon

Proprietors : The Grahame-White Aviation Coy., Ltd.

HENDON : Phone : Kingsbury 120 (4 lines). Wires : "Volplane, Hyde, London."

LONDON : 166, Piccadilly, W. Phone : Mayfair 5955. Wires : "Claudigram, Piccy, London."



"THE AEROPLANE," FEBRUARY 12, 1914

THE AEROPLANE

12
WEEKLY

Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, FEBRUARY 12, 1914

No. 7

ALTITUDE.



Photograph by F. N. Birkett, Percy Road, Shepherd's Bush, W.

Mr. F. P. Raynham, now admitted to be in the front rank of the world's pilots, who last week reached an altitude of 15,000 feet on an Avro biplane (80-h.p. Gnome), and then glided, with the engine stopped, 21 miles from Brooklands to Hendon.

NIEUPORT (England) L^{td}.

**Makers of All Types of Aircraft,
Armoured Destroyers for Fighting Airships
Fast Monoplane Scouts
Two-Seater Military Monoplanes
Hydro-Aeroplanes
Nieuport - Dunne Biplanes**

Write for Full Particulars to the MANAGING DIRECTOR:

MR. ALBERT PICARD, 28, Milk Street, London, E.C.

The Offices will be transferred on the 15th February

45, GREAT MARLBOROUGH STREET, W.

The **"Bristol"** *Flying Schools*

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.

FILTON HOUSE, BRISTOL.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Roils House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

"Which Being Interpreted"

As a general rule, in a technical paper, one should confine oneself severely to the science with which that paper is concerned, but, perhaps, for once in a way, one may be forgiven for telling a story about something else altogether, just for a change. At any rate, I will risk it.

Once upon a time, there was a country which had a great reputation for the all-round sportsmanship of its inhabitants, but in this story we are especially concerned with horses. The people of this country bred horses of all sorts, for various useful purposes, but whatever the useful purpose might be they made a sport out of it. They bred very fast horses, called "thoroughbreds," for racing round hippodromes. They bred horses which were less fast but were much stronger so that they were good to carry a man across country, and to test their powers they raced them against one another in competitions called "over the sticks," or they rode them over other people's land behind a number of very fast dogs who made a musical and exciting noise as they ran—this was called "riding to hounds," and was a very dangerous sport, but it was a National Institution and so no one minded being killed at it. They bred small, sturdy ponies, and used them in a curious Oriental game called "polo," wherein the riders smote violently on a ball or on one another or on the next man's pony's shins with a heavy-headed stick. They bred other ponies which trotted very fast harnessed to two small wheels on which the driver was perched. They bred big, heavy, slow horses for agricultural work, and for hauling heavy loads, but even here they made sport with them in ploughing matches whereon the yokels of the district betted heavily and went for weeks without bacon when they lost.

All these horses had their uses in life, and also their uses in time of war. The thoroughbreds and the half-bred hunters made splendid mounts for the cavalry and horse-guns, for their blood told when they were hard pressed. The ponies were excellent for mounted infantry, which always had to be used in every war, though they were officially abolished before and after. The heavier horses were the only possible animals for heavy guns and transport. And the various quarter-bred and bred-anyhow beasts in between were just what were wanted for field-guns, first line transport, infantry majors, and other oddments. So that it was quite clear to most people with ordinary common sense that the sporting proclivities of the inhabitants of the country whereof I am writing were very useful to the country's defence.

Now it came to pass that in course of time two great afflictions fell upon that land. Firstly, the inhabitants lost much of their love of sport. Instead of going forth on holidays and competing in teams each against each in healthy games which fostered local patriotism, they became mere lookers-on, and went by their tens of thousands on high days and holidays to arenas wherein a score plus two of wild men from the North beat one another with their boots to make sport for

them. And the richer people of that country rode in horseless carriages to open heaths where they struck strenuously with metal-headed clubs on the turf in the vicinity of small gutta-percha globes, which they set up as fetishes, that their contortions might stir up their livers and brighten their brains, and thus enable them to make more money by selling that which they had not for hard cash to those who did not wish to buy.

Therefore, the Gods of that country became angry, and they sent upon it the second affliction, to wit, a plague of Scientists, who made incantations with strange wands called "slide-rules," and wrote cabalistic figures called "formulae," which were said to prove much but certainly taught nothing.

And certain of these Scientists, being much favoured in high places, persuaded those in power over the Army that by Science alone could the Army be properly horsed. They demonstrated by the Darwinian theory, and the law of Natural Selection, and other things that the unscientific horse-breeders of that land who cared only for sport could breed no true Army horses. Therefore, these Scientists were established at vast expense in a beautiful vale, where they organised a Royal Animal Farm, and gathered unto themselves many assistants by the law of Natural Selection, naturally selecting their friends and relations whether they had ever seen a horse or not. Then they asked sundry unsuspecting horse-breeders that the best horses might be sent them for inspection with a view to purchase. Whereafter, having obtained many interesting figures, and having used the best horses for stud purposes, the horse-breeders' animals were returned without many thanks as unsuitable.

Certain horses of foreign breeds were bought "just to go on with," while the Royal Animal Farm was evolving the Perfect Beast, but the native breeds were strenuously discouraged. The breeding of horses for sport was discouraged by forbidding young officers to ride for pleasure on other than official horses, so that the soldiers of that country no longer contested their great event, which they called "The Grand Military," nor did they jump against soldiers of other countries, nor could they ride to hounds, nor race in the minor events called "Point-to-Point."

In course of time, by scientific cross-breeding from borrowed sires, the Farm produced its first animal, which, unhappily, having the fiddle head of a dray horse and the light barrel of a weedy thoroughbred, fell heavily on its nose and killed its jockey. Still, science, like virtue, has its own reward, and by careful study of unscientifically-bred horses, the Farm was rewarded by the arrival of an astonishingly good foal, which on account of its many undeniably fine qualities, when it grew up was known as the Beast Extraordinary. So successful was it that as an all-round horse it beat everything in the country. Wherefore the Army, mesmerised by the success of the Royal Animal Farm, decided to use nothing else, if the breed could be standardised. This the Scientists said

could be done, and, in course of time, the new animal, which was called for short the "B.E.," was produced in quantities to the exclusion of everything else.

The Beast Extraordinary, even when it was bred in numbers, was very good. It was a trifle tender in the mouth, but one got used to that. It was not as sure-footed as the old Arab breed, but if a rider let his mount slip, it was regarded as his own fault, and if he was not killed he was told to walk in future. It was faster than a carriage horse, but not so fast as a thoroughbred, and though it could not haul a load like a dray horse it could get uphill better than a hackney. It took up more room in tight corners than a pony, but then, no one wanted mounted infantry.

Many Army officers loved it. This was a democratic country, so some of them did not belong to the class who rode fast horses (the class the Romans called "equites"), and had never before ridden anything as good, let alone anything better, so they cried out for more B.E.s. Scientific soldiers admired its wonderful standardisation, which so simplified its equipment. All harness could be made dead to size, and riveted up. There need be no foolish adjustable bridles, or collars, or girths, with buckles that came adrift, and straps that had to have extra holes punched in them. Everything was made dead to size, and fastened with fixed snap catches. The Government Inspectors measured the fittings with micrometers, and rejected leather which was one-hundredth of a millimetre wrong either way. Horses whose hoofs would not fit the standard shoe-gauge without either pushing or shaking were ruthlessly rejected. Everything was reduced to an exact science.

Naturally, many of the old unscientific horse-breeders retired from business. Some few went abroad, where their practical knowledge was appreciated, and so improved the various types of foreign horses. Others managed to exist by selling the best of their thoroughbreds to foreign Powers, but they had no incentive to improve the breed for home consumption, for sport was dying. A few men with money who had never before bred horses, took over the breeding of Beasts Extraordinary under official supervision, but they took no interest in the sport of horse-racing, or trotting or ploughing. They bred Army horses as a commercial proposition. And so Sport died, for there was no temptation to spend money on it. A little private riding was done on

cast B.E.s., or on animals that included some B.E. features, but not enough to make it worth while to produce anything better.

Then a war broke out. The Army went into it cheerfully, their horses equipped to the last bridle-rivet, and standardised to a hair. But when the advanced cavalry met, the enemy on lighter but faster animals rode rings round the standardised horses, and "scuppered" the crowd. The hostile M.I. on light ponies could go where the Beasts Extraordinary could not find foot-hold. The heavy cavalry rode them down by sheer weight. The transport failed, and the gun-horses broke down with over-work. It was found once more that history repeats itself, and that machine-made mediocrity must always give way before that which is genuinely the best, whether it be the product of natural genius, or whether it has simply grown accidentally. The machine-made article may find its way into that weird realm known as "the upper middle class," but it is never the same as the genuine aristocrat, and as it is with humanity, so it is with human products.

Then the Military Authorities of that land sought throughout it for other horses fit for military work, but could find nothing but the cast B.E.s., and a few others which had been bred specially for perigrinating circuses, horses which at the word of their riders would stand on their heads, and roll over on their backs, but were quite useless for military purposes. The Royal Animal Farm, had, it is true, produced a few weight-carriers and fast horses experimentally, but they had discouraged all products by independent breeders, so there was no supply in the hour of need. The mistake lay in that through jealousy they had standardised too soon on one type of their own instead of helping other people to try and produce something better of similar type, and had killed all other types which would have been good for other purposes.

So it came about that the horses that could be bought were worse than useless, and the enemy, well mounted on more varied but more efficient horses, dealt faithfully with them when and where they would. And that is why this sad story begins "Once upon a time there was a country."

Which thing is a parable. An inspired schoolboy once defined a parable as "A heavenly story with no earthly meaning." Perhaps all this has no earthly meaning either—for some people. C. G. G.

The Royal Aero Club Committee.

In a week or two the question of the Committee of the Royal Aero Club will come up for consideration, when, according to rule, half the members of the Committee retire and their places have to be filled by election. It may be well to start the discussion on the matter as soon as possible, so that something may be done to improve the efficiency of the Committee as a whole. Taking it all round, it has done much good work in the past year, but it still lacks a sufficient number of practically minded men who are really keen on the doings of modern aircraft.

The retiring members of the Committee this year are the Marquess of Tullibardine, Chairman of the Club, Colonel Capper, R.E., Mr. Cockburn, Major Fulton, R.A., Mr. Moore-Brabazon, Commander Samson, R.N., Mr. Mortimer Singer, Mr. Sopwith, and Mr. Roger Wallace, K.C. Of these, Lord Tullibardine, Mr. Cockburn, Major Fulton, Mr. Singer and Mr. Sopwith must be induced to offer themselves for re-election, and must be elected at all costs. One would include with them Commander Samson, but for the fact that one gathers that there is some official objection in high places in the Navy, to Naval officers acting on the committees of any public body, though exception will, one hopes, always be made in favour of the R.Ae. C. Accidents Committee, on which Naval officers, especially engineers, are invaluable.

Of the other three Colonel Capper's duties prevent him from attending more than a few meetings of the Committee, and

also from keeping in touch with aviation, so one scarcely expects him to put up for re-election. Mr. Moore-Brabazon attends fairly regularly, but there are those who think his knowledge of aviation is not sufficiently modern, and certainly one never sees him at any of the places where flying goes on, so he is certainly not in close touch with the affairs of to-day, or the feeling of other members of the Club. It would, therefore, be a graceful act on his part to give way to a more active member of the Club, unless he decides to take a closer interest in future. Mr. Roger Wallace is admittedly an excellent representative of the Club at the International Federation meetings, but it is no disrespect to him to say that a member of Committee should know much more about aircraft than he does. Mr. Wallace, as a vice-president of the Club, would be even more useful abroad than if he went as a Committeeman.

Even among the members of Committee who do not retire automatically, one might suggest that a voluntary resignation or two would strengthen the Committee. Mr. John Dunville is one of the best sportsmen in the United Kingdom or Ireland, but he scarcely ever concerns himself actively with aviation, and he cannot give the time to the subject that a hard-working committeeman should. Mr. Pollock, personally one of the most charming of people, is also not sufficiently closely in touch with modern aircraft to enable him to give an opinion on technical points. He has been for many years on the Committee and might with a clear conscience decide that



LEARN TO FLY

AT THE



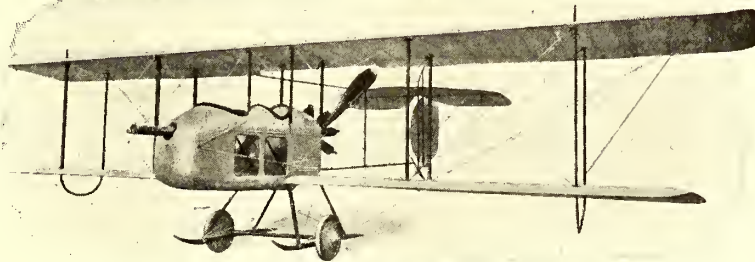
VICKERS FLYING SCHOOL

BROOKLANDS.



VICKERS Flying School, Brooklands

Thorough, Efficient and Economical Tuition.



VICKERS Gun-carrying Biplane



Chief Pilot Barnwell

VICKERS, Limited,
AVIATION DEPARTMENT,
VICKERS HOUSE, BROADWAY,
WESTMINSTER, S.W.



Assistant Pilot Knight

has done enough for aeronautics. And Mr. O'Gorman certainly a clever technician and tactician, surely occupies an invidious position as a member of the Committee. No one who knows Mr. O'Gorman would for a moment think that he would take the slightest unfair advantage of his position on the Committee any more than he would of his position as chief of the Royal Aircraft Factory, and for myself I wish here expressly to state that I believe Mr. O'Gorman to be the victim and not the cause of the trouble between the R.A.F., the Royal Flying Corps, and the Trade. The trouble, I feel sure, arises from another source altogether, which will be disclosed in due time. Nevertheless, Mr. O'Gorman is ill-advised to remain in a position which is open to criticism, as he is so long as he remains a member of the R.Ae.C. Committee.

The great difficulty is to find really good men who have time to serve on the Committee. Apparently sailors are barred by authority. The supply of available soldiers is not unlimited. We dare not let the Club get into the hands of the "trade," as certain motoring organisations are, or the Club will at once lose the semi-official position it holds to-day, when the Committee, and its excellent secretary, Mr. Harold Perrin, work in close touch with Government Departments on all kinds of subjects connected with flying, but a certain trade element is desirable. There remain also amateur sportsmen or scientists, neither of whom are plentiful.

Among suitable persons there are four whose names occur to one. The Honourable Maurice Egerton, if only he could be persuaded to act would be excellent, for he is a practical

flier and more than a little of a scientist. Mr. Norman Clark Neill is an all-round sportsman of the best type and a keen follower of modern flying. Also he has time to spend on Committee work. Major Lindsay Lloyd, of Brooklands, is an excellent organiser and a willing worker whenever called upon for help, and his connection with the aerodrome has given him much experience. There is also Mr. Fred May, who, although in the trade, could, if elected, always be relied upon to sacrifice his engines if his duty as a Committeeman clashed with their interests. He is a man of sound judgment, and of considerable strength of mind.

We need men of the type of these four on the R.Ae.C. Committee, and one hopes that they will allow themselves to be put up for election. The opinion of any of them would be respected alike by people of importance outside the Club whose goodwill we desire to win, and by the heterogeneous mass of miscellaneous humanity composing the membership. If any equally good names occur they would doubtless be welcomed.

On Tuesday next there is an Extraordinary General Meeting of the Club to consider the repeal of the rule allowing members to vote for less than the full nine Committeemen. In the writer's opinion this rule should stand, for if it is altered back to its old form, it means that members are often compelled to vote for candidates whom they do not desire to place on the Committee, or about whom they are indifferent. In this way it may well happen that a single vote given in favour of a candidate whom one does not particularly wish to be on the Committee may just give him the majority over another candidate who is desirable to the voter.—C. G. G.

The Royal Aero Club.

The annual dinner will take place at the Royal Automobile Club, Pall Mall, London, S.W. (by kind permission), on Friday, February 27th, 1914, at 7.30 for 8 o'clock. In order to facilitate the arrangements, members are requested to notify the secretary as early as possible if it is their intention to be present. Members may be accompanied by ladies.

Tickets (exclusive of wines and cigars), 12s. 6d. each.

The following presentations will be made during the dinner: Britannia Challenge Trophy to Capt. C. A. H. Longcroft, R.F.C.; British Empire Michelin Trophy No. 1 and £500 to Mr. R. H. Carr. The Marquess of Tullibardine, M.V.O., D.S.O., M.P., the chairman of the club, will preside, and the Right Hon. Winston Spencer Churchill, M.P., First Lord of the Admiralty, has honoured the club by accepting its invitation.

At the committee meeting on February 3rd the following aviators' certificates were granted:—727, Com. Mansfield Cumming, R.N. (Maurice Farman biplane, Etampes), Nov. 10th, 1913; 728, Frederick George Dunn (Blériot monoplane, Blériot School, Hendon), Jan. 23rd, 1914; 729, Herbert Ambrose Cooper (Caudron biplane, Ewen School, Hendon), Jan. 27th, 1914; 730, Lieut. Marmaduke Henry Monckton, R.A. (Vickers biplane, Vickers School, Brooklands), Jan. 28th, 1914; 731, Edward Fraser Norris (Grahame-White biplane, Grahame-White School, Hendon), Jan. 28th, 1914.

The following aeronaut's certificate was granted: 38, John L. Weston.

The following airship pilot's certificate was granted: 23, John L. Weston.

The Aeronautical Society.

Official Notices.—Election: Mr. F. R. Harford has been elected a member of the Society. Meeting: The seventh meeting of the present session will be held on Wednesday, February 18th, at 8.30 p.m., when Major-General R. M. Ruck, C.B., R.E. (ret.), will preside. Mr. F. H. Bramwell, B.Sc., A.F.Ae.S., of the National Physical Laboratory, will read a paper, to be followed by a discussion, on "Propellers."—B. G. COOPER (Sec.).

Mr. Raynham's Fine Flight.

On Wednesday last, February 4th, Mr. F. P. Raynham, on the Avro biplane, 80-h.p. Gnome, made what was undoubtedly the finest flight done so far this year. Starting from Brooklands he rose to a height of 15,000 feet. This was the height indicated by the recording barograph owned by the Brooklands Automobile Racing Club, but as it was not officially sealed the flight cannot stand as an official record. However, Mr.

Raynham is confident he can beat it by a handsome margin, and at his next attempt he will take up the official instruments. Having arrived at this immense height, Mr. Raynham's nose began to bleed, so he stopped his engine, and as there was a useful south-west wind blowing, he glided straight for Hendon, and when he arrived there, was still at a height of over 5,000 feet. This is probably the longest glide on record. On arriving at Hendon Mr. Raynham took up Mr. Harold Blackburn as passenger, and flew with him back to Brooklands.

For Mrs. Slack.

A committee has been formed to raise a fund for the benefit of the widow and two children of the late Robert Slack, who, it will be remembered, met his death recently in a motor accident in peculiarly distressing circumstances. Money is urgently required for the immediate needs of his wife and two young children, a girl and a boy, aged respectively seven and four years. Any donation, however small, will be welcomed and acknowledged in *THE AEROPLANE*, "Aeronautics," and "Flight," the "Daily Sketch" and "Evening Standard." Remittances should be sent to the Hon. Treasurer, A. Graham Mathey, Esq., Manager, Capital and Counties Bank, Kingsway Branch, W.C. Cheques and postal orders should be crossed. "Slack Fund," Capital and Counties Bank. The Honorary Secretary of the fund is Mr. F. N. Birkett, 97, Percy Road, Shepherd's Bush, N.W.

The editor of this paper has investigated the case, and recommends it as a thoroughly deserving one. Mr. Slack's will leaves what money he had saved in trust for his children, who, with his wife, are to draw the interest only till the eldest is 25 years of age. The amount is not large enough for them to live on the interest, so money is immediately needed to keep them till Mrs. Slack can find employment.

The Committee consists of Messrs. O. F. Odell, R. P. Baker, John Ames, A. C. Hunter, A. M. Ramsey, and F. N. Birkett, and their names are sufficient guarantee that the Fund will be properly administered.

The following subscriptions have already been given:—The International Correspondence Schools, £21; O. F. Odell, £2 2s.; *THE AEROPLANE*, £1 1s.; J. Teulade, £1 1s.; John Cates, £2 2s.; The General Aviation Contractors, Ltd., £5 5s.; Chas. Lane, £1 1s.; J. C. Dunne, £1 1s.

The Seaplane Circuit.

A. V. Roe and Co., Ltd., the Sopwith Aviation Co., Ltd., and White and Thompson, Ltd., of Bognor, the Curtiss concessionaires, all propose to enter machines for the "Daily Mail's" £5,000 seaplane circuit of Britain this year.

The Beatty School of Flying

1. On Monday, February the 16th, I shall open at the London Aerodrome, Hendon, the BEATTY SCHOOL OF FLYING.
2. Every one of my pupils will start his training by flying with me, holding the dual control and learn exactly those instinctive control movements which a trained pilot makes in flight—just the way in which I was trained by Mr. Orville Wright
3. My pupils can complete their tuition and take their certificates upon the WRIGHT BIPLANES or HANDLEY PAGE MONOPLANE with which my school is equipped.
4. 16 of my pupils in America completed their training without a single breakage. Average training time $2\frac{1}{2}$ hours.
5. TUITION FEE, covering all charges until certificate is obtained on monoplane or biplane. **£75**

(Signed) GEO. W. BEATTY.

Applications for Enrolment
to Beatty Flying School,
London Aerodrome, Hendon.

The State of French Military Aviation.

(Continued.)

BY W. E. de B. WHITTAKER.

In my last week's article I dealt with that part of Senator Reymond's speech which referred to the French dirigible fleet. This week I continue with the aviation section. All discussion on lighter-than-air machines is more or less academic at present, as, owing to the great cost, no nation, not even Germany, has emerged from the experimental stage. It is still as difficult as ever to decide on a suitable type to be designed and built. All is so costly that progress cannot be made by making mistakes—that is, not as a habit. In aviation the position is different. So much may be done at comparatively low cost that progress is very rapid. Experimentation is not confined to wealthy Governments; private individuals may take their part. Even to-day, so early in the history of the science, it is possible to decide on useful types for service work, and in any case the expense incurred and time absorbed in altering the type is not of great importance.

The first part of the subject treated by M. Reymond was that of personnel. So much has the official management of the aeronautical services disappointed officers that the number of volunteers for aviation has gone down to an astounding degree. In March, 1911, when the Ministry of War first asked for volunteers, there were 1,500 candidates; in 1912 there were 300; and in September of last year the number dropped to 22! Even deducting those candidates who in the early days did not appreciate the never too obvious fact that aviation in the army is not one long-continued picnic, the dwindling away of the number of volunteers shows fairly clearly that all is not well in France.

As to the present number of officer pilots, one may quote M. Reymond: "The latest official figures speak of 220 officer pilots; but this figure is quite inaccurate, for there are only 213 military brevets in all, and of this number it is necessary to deduct 40 officers who have been killed and 40 civilians, leaving only 133 officer pilots capable of being on the active list. Of this number it is unlikely that more than half are of any use from the military point of view."

At this point M. Reymond adopts the attitude of several well-known British critics who think that the written word, if sufficiently skilful, is enough to make the success of a scheme. They forget the human element. Members of Parliament do not as a body

understand discipline and the reasons for it. Therefore it is unnecessary. M. Reymond complains that it is necessary for any young officer desirous of joining the aviation corps to obtain first the permission of his C.O. He believes in direct entry, forgetting apparently that a man must be a soldier first and an aviator afterwards. On the other hand there is no reason why the rank and file should not be admitted by direct entry. He holds up to ridicule a colonel who said, "I attach the greatest importance to discipline, shooting and musketry generally," and later, "I want soldiers, not mechanics."

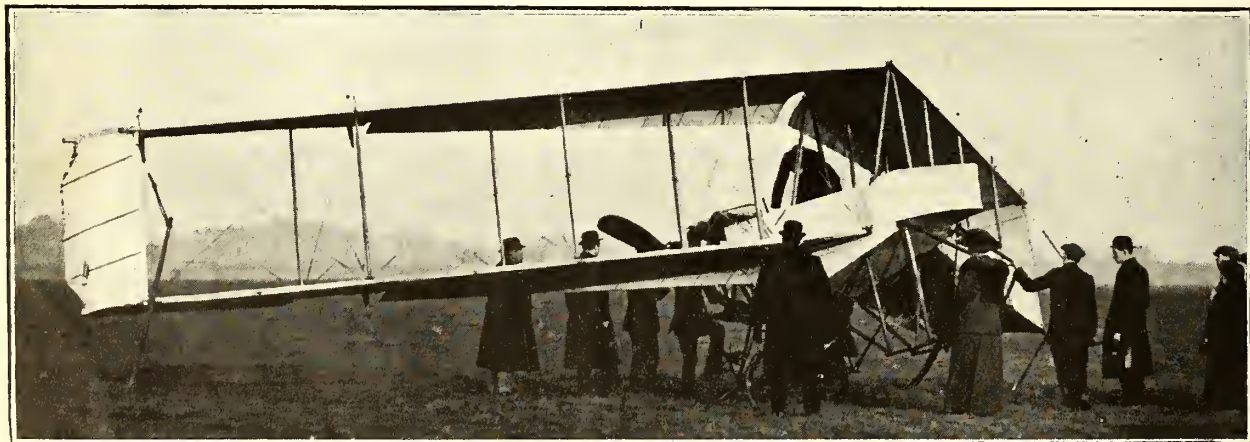
M. Reymond speaks of lack of sympathy for aviation amongst those in authority. Human nature, when all is said and done, is paramount, and none can say that the aviator has done much to endear himself to an efficient soldier.

He suggests that aeroplanes carrying observers shall be piloted by N.C.O.'s and men, and that the observers shall be officers of the general staff capable of piloting an aeroplane in times of necessity. This is surely sensible, but it forms no part of criticism.

Four young officers he knows went to the Ecole Polytechnique with the sole intention of becoming officer aviators. They obtained their certificates and left the school. They asked to be attached to the aviation service. In the end three were sent to Fontainebleau to the artillery, while one was gazetted to the engineers and was stationed at Versailles. This may seem waste of material, but, on the other hand, had these officers been sent direct to aviation, they might have been good aviators, but they would certainly have been very bad soldiers. Whereas, if they are attached to aviation in two years' time they will be efficient soldiers as well.

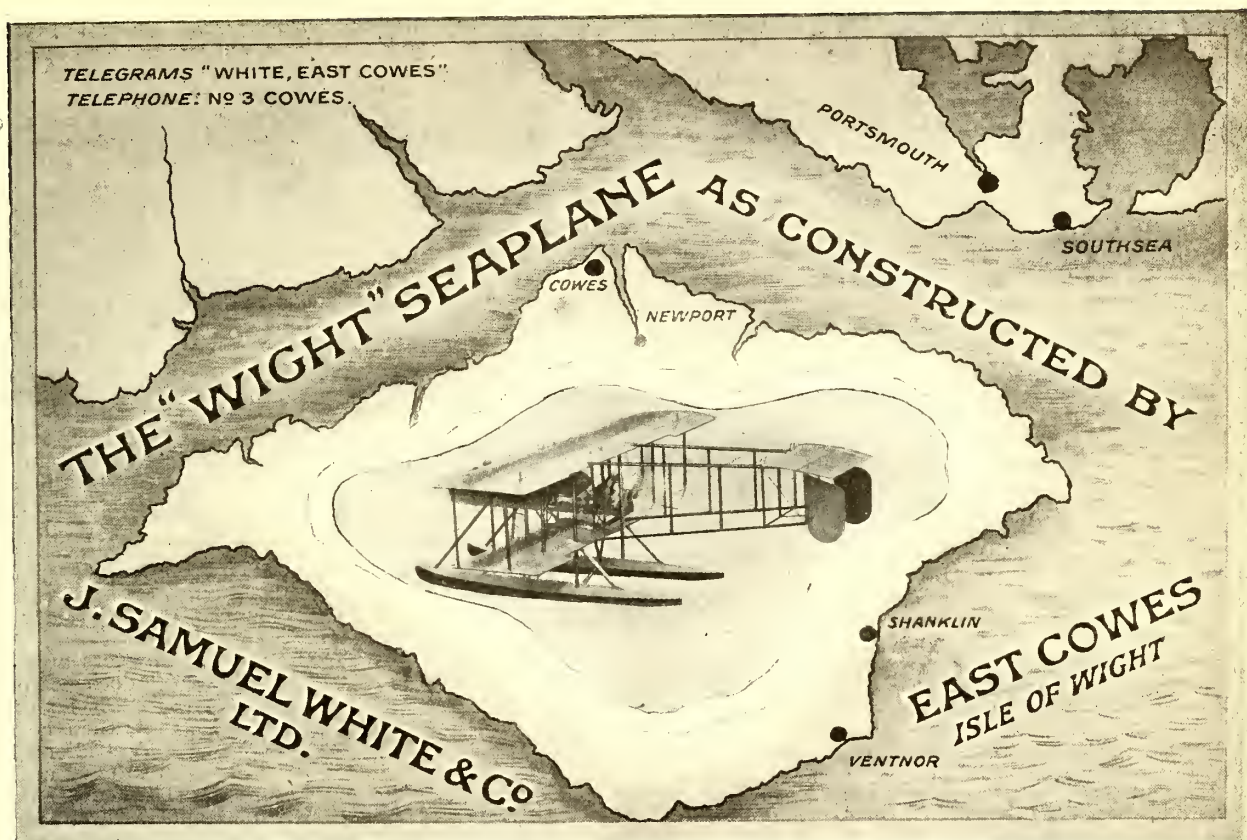
M. Reymond complains that officers stationed at an aviation centre wear the uniform of their original corps. This is unavoidable until the aviation corps takes its final position in the military world. It is better by far to second officers for service with the aviation corps while the average effective life of a pilot is still unknown than to attach him permanently to a corps from which he may have to retire in the course of a year or two with no further military life to follow.

All the flying corps of the earth are experiencing a similar trouble—a lack of efficient mechanics.



(Photograph by F. N. Birkett, Percy Road, Shepherd's Bush, W.)

The latest Dunne biplane out for test at Hendon last week, piloted by Mr. N. S. Percival, when it showed good speed and remarkable stability. The trailing edge is entirely altered and the body shortened.



The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS
for the building of

HENRY & MAURICE FARMAN

Aeroplanes

AND

Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.

BRITISH BUILT

CAUDRON

AEROPLANES

MONOPLANES

BIPLANES

HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
is thoroughly equipped and
Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

France, the home of good workmen, should find less difficulty than many of her neighbours, but if one may believe M. Reymond, she has not made full use of her opportunities. At one centre there are five mechanics and sixteen aeroplanes. At another there are five to seventeen aeroplanes. In a centre near to Paris M. Reymond knows an escadrille reputed to possess its full quota of mechanics (six), yet when an aviator desires to fly there is not a mechanic to be found. The British workman has his rivals!

One mechanic who had received an exhaustive training in one of the leading aeroplane works in the country went up to do his military service, and it was naturally expected that as he was capable of practically building an aeroplane he would be attached to the flying corps. But, no! he was turned into a Chasseur Alpin!

In 1911 (January) it was decided to form a sort of reserve of 200 aviators (civil) for service in time of war. To-day the project has got no further than the decision. There is no such reserve in existence, and each day the task of forming one becomes more difficult.

Speaking of aeroplanes he says that the Germans possess some with engines of 200-h.p., the Russians have armoured aeroplanes, as have also the Germans. Yet, so far, France has none.

No encouragement other than orders has been offered to the constructors in France, whilst in Italy, Germany and Great Britain many official prizes have been given. It is curious to see our own arguments turned on ourselves. In England we want official orders, in France they want official prizes. Surely, M. Reymond can realise that the aeroplane trade can be better helped by being treated as a commercial undertaking rather than as an infant learning its A B C? Prizes often go to the wrong person, and, in any case, they do not offer a continuity of profit, whereas orders do.

M. Reymond is very displeased that the Ministry of War should have reorganised the aeronautical services by forming two aviation regiments stationed respectively at Reims and Dijon. He hopes that the old centres and groups will not be suppressed, as he considers them absolutely essential. The parade ground of the French aviation corps is bounded only by the Mediterranean on the South and the frontiers on the East and North. Pilots should know their country before war breaks out, and he thinks that a suppression of the local centres will prevent such knowledge being acquired.

He then speaks of the training of pilots, and deals with the new scheme for the replacing of civil schools by three large establishments at Reims, at the Avor Camp and at Pau. The word of the State to the constructors has been broken. They have gone to great expense in the formation of schools, and now that they are beginning to show a profit the State steps in and supersedes them. Economy is the plea for the change. Well, says M. Reymond, what schools have paid? Those employing one type of aeroplane. All those training pupils on several types have failed. What will then be the expense of the Government schools where, of necessity, several types will be in

use? Yet, on the other hand, I question whether, efficiency taken into account, the Central Flying School is not, so far as the maintenance of aeroplanes is concerned, quite as economically managed as any civil school in this or any other country.

The Government Dockyard joke appears to have revived in France. Since the days of Rameses III Government institutions run in competition with the civil industries of the country have been regarded not only with distrust but with hatred. In our own country none can say that the Royal Aircraft Factory is deeply loved by the outside world. Now it appears that the same situation is arising in France. There is one great difference in France—the officials at Chalais-Meudon are officers in the French Army. Beyond that the position has points of resemblance with that in England. M. Reymond protests strongly against officers being attached to Chalais at extra pay, and then being permitted to invent details for aeroplanes which they sell at a later date to the Government at many times their true value. Officers at Chalais should undertake the investigation of inventions made by civilians, and not spend the country's time and money in perfecting possibly useful and possibly useless inventions of their own. Chalais-Meudon does not compete with private firms in the building of machines, and is so far on better lines than the Royal Aircraft Factory. The behaviour of the officials seem to be not dissimilar.

The scale of payments to military aviators appears to be unsatisfactory. An observer who does not possess a brevet is entitled to certain payments for each flying day, but if he does own a brevet, then he receives no additional pay whatsoever. A soldier-pilot landing near a village must rise again hungry unless he buys food at his own expense. The Government provides nothing. Perhaps this is just as well, for if extra pay were provided for such contingencies every pilot would land near a village at any time when food was available. No extra payment is made to pilots trying experimental machines, though the risk is higher. It would, of course, be difficult to fix any fair and adequate scale.

After speaking of the aviation detachment in Morocco and the difficulties under which it is run, he concluded his speech (on the 27th) with a plea for the autonomous organisation of the aviation service. In the course of it he raised the old argument that the higher posts in the aeronautical corps should be filled from the ranks of officer-pilots.

At this point a M. de Treveneuc intervened in the debate, and said that this might produce fine pilots, but it would probably produce bad chiefs. M. Reymond replied by asking the interrupter to consider aviation as a special and separate arm, and, therefore, run on entirely different lines to any other arm. How ridiculous it would be, for instance, if an officer commanding a cavalry division could not ride a horse! (In parenthesis, it would not really.)

This roughly is the essence of M. Reymond's speech on Military Aeronautics before the Senate on January 23rd and 27th. I shall deal with the official replies next week.

(To be continued.)

A New Nieuport Pilot.

One notes with pleasure that Mr. G. M. Dyott, the well-known pilot constructor, has entered the service of the Nieuport (England), Ltd., as pilot. Mr. Dyott has now gone over to Paris to pass some time at the Nieuport Works at Issy-les-Moulineaux and to practise on the various Nieuport machines, both land machines and seaplanes. Mr. Dyott's ability as a pilot is undoubted, though he has had little opportunity of distinguishing himself in this country. In addition he has great ingenuity as a designer, and an unusual capacity for understanding what a machine does, and why it is doing it, so that he is decidedly an acquisition to his new employers.

The New Dunne Biplane.

The latest Dunne biplane was out on Tuesday last at Hendon, and showed itself to be considerably faster than its predecessors and very steady in a wind. Slight alterations, however, are being made in order to increase its lift. The recent long distance flights by Herr Langer and Herr Ingold point to the advisability of developing the inherently stable aeroplane, for the Pfeil biplanes used by both pilots are of the inherently stable type, and their success should be a great encouragement to the Blair Athol Syndicate, for Mr. Dunne's system has undoubtedly produced a machine which is considerably more steady than the ordinary "Zanonia" type.

If you wish a "Jolly Time" in your
flight across the Atlantic

_____ or _____

Should you wish to pick up £5,000
for merely flying round Gt. Britain

Choose
THE IMPROVED 120-H.P.
GREEN ENGINE

=====

Its World - Famed Reliability will Pull you Through.

=====

THIRTY HOURS (30-hours) NON-STOP BRAKE-
HORSE TEST given if required, under actual
working conditions.

=====

Write for Particulars :

THE GREEN ENGINE COMPANY, LIMITED,
166, PICCADILLY, W.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," February 4th, 1914:—

Royal Flying Corps, Military Wing.—Capt. A. C. H. MacLean, Royal Scots (Lothian Reg.), is advanced from Flying Officer to Flight Commander, on appointment to the Central Flying School as an Instructor, vice Major J. D. B. Fulton, C.B., R.A. (Dec. 18th, 1913).

Special Reserve of Officers.—Royal Flying Corps, Military Wing.—Sec. Lieut. (on probation) R. W. R. Gill resigns his commission (Jan. 27th); Sec. Lieut. V. A. Barrington-Kennett, from Unattached List, T.F., to be Sec. Lieut. (Feb. 4th).

NAVAL.

Lieut. A. M. Longmore, R.N., has now taken command at Calshot. The Coastguard Station at Calshot has been taken over by the Naval Air Service, as well as the men and matériel formerly connected with the Southampton Water boom defence.

On Saturday last the First Lord of the Admiralty embarked on a Short sea-biplane (160-h.p. Gnome) from an Admiralty launch off Tilbury Fort, and flew in it to Isle of Grain, piloted by Lieut. Seddon, R.N., O.C. Isle of Grain Air Station. It is reported that Mr. Churchill himself started the engine, but it is not true that he did so by swinging the propeller, as reported in certain papers, for all the Short seaplanes are fitted with a neat and simple starting-handle inside the machine, just in front of the passenger-seat. At the time there was a considerable wind and some rain, so that the flight was far from comfortable. Later on Mr. Churchill crossed to Sheerness and joined the Admiralty yacht "Enchantress." He also paid a visit to Short Bros.' works at Eastchurch, where he inspected various machines under construction for the Admiralty.

At Eastchurch on Monday of last week Com. Samson, R.N., flew S. 3, S. 10, and Dep. 7. Eng.-Lieut. Briggs, R.N., flew Blériot 39. Sub.-Lieut. Rainey, R.N.R., was on H. Farman 31. Sub.-Lieut. Peirse, R.N.R., went across country on Avro 16, with Lieut. Osmond. Sub.-Lieut. Marix, R.N.R., was on Caudron 40. Lieut. Collett, R.N., was on S. 65 and Capt. Kilburn on S. 65. Telegraphist Stirling flew a Bristol box-kite (50-h.p. Gnome), and M. Farman 70 was also flown.

On Tuesday, Sub.-Lieut. Marix was on Sopwith 104. Eng.-Lieut. Briggs up most of the day on Blériot 39. Sub.-Lieut. Rainey on Bristol 43; Capt. Kilburn on S. 62; P.O. Andrews on Avro 41; Telegraphist Sparks on S. 63, were all out. Sub.-Lieut. Rainey left on Bristol tractor to take oil to Lieut. Collett, who had landed near Southend, but when near Leigh he alighted abruptly from 50 ft., totally wrecking his machine.

On Wednesday, Eng.-Lieut. Briggs was on Blériot 39 over Sheerness. Sub.-Lieut. Marix, with Lieut. Peirse on Sopwith 104, went across country. Lieut. Collett returned from Southend. Com. Samson made a very high flight on Dep. 7. Sub.-Lieut. Lyttleton, R.N.R., was on Dep. 36. Avro 41 was flown by different pilots. On Thursday, Eng.-Lieut. Briggs was on Blériot 39, but came down at Minster owing to engine trouble. Com. Samson was on new M. Farman ("Shorthorn" type). Sub.-Lieut. Lyttleton was on Dep. 36. Lieut. Collett on Avro 41. P.O. Andrews made a high flight early in the morning. Sub.-Lieut. Marix flew Caudron 40 and Sopwith 104, and Lieut. Davies Sopwith 27. On Friday, Sub.-Lieut. Marix was up on Sopwith 104, and Asst.-Paymr. Finch-Noyes on H. Farman 31. S. 63 was flown by different pilots. Eng.-Lieut. Briggs returned from Minster with a faulty engine. On Saturday, despite a gale, Eng.-Lieut. Briggs went out on Blériot 39. Sub.-Lieut. Marix was also up on Sopwith 104 across country. Sub.-Lieut. Lyttleton flew to the mainland, returning after lunch. An S. 38 type biplane was standing on the ground unattended in the gale, which made it difficult to keep on one's legs, when the wind picked it up and it "looped the loop," landing on its back and completely wrecked itself. Only five minutes before a Blériot was blown over, but not damaged.

There has been a good deal of flying in the Southampton district during the week. On Monday, Lt. Bigsworth, R.N., was out on the Bristol, and Sub-Lt. Travers, R.N.R., on a Maurice Farman Hydro 70 Renault. On Tuesday Lt. Bigsworth was again out with a passenger on the Bristol, and

Sub-Lt. Travers and Lt. Creswell, R.M.L.I., and Lt. Edmonds, R.N., on the Maurice Farman Hydro 70 Renault. The Wight seaplane flew over from Cowes. On Wednesday Lts. Bigsworth and Miley, R.N., on the Bristol, Sub-Lt. Travers, and Lts. Creswell and Edmonds on the Maurice Farman Hydro 70 Renault were out. On Thursday Lts. Bigsworth and Creswell flew on the Bristol, and Lt. Edmonds on the Maurice Farman. And on Friday Sub-Lt. Travers was out on the Maurice Farman.

The Bristol seaplane still flies with her tail high, and as soon as the engine is opened out the tail lifts off the water, rendering the water rudder ineffective. Once clear of the water she climbs quickly, and has reached 5,000 ft. in twelve minutes. Her flying speed is about 70 miles per hour.

The Maurice Farman with 70-h.p. Renault seems to be underpowered with full load and a choppy sea, but it is a graceful machine in the air, and banks with ease without any sign of side-slipping. Its springing, although very simple, is effective, and saves the machine from shock on alighting.

The Wight seaplane is flying with its usual grace and ease, turning in the air like a land machine.

The work of transferring the aviation base from Port Laing to Dundee is now rapidly going on, the three sheds being dismantled and sent by rail to their destination. One tent is already on the way, and the skeleton of another was being rapidly demolished when the base was visited. The principal reason for the shift is now understood to be the failure of the owners of the ground and the Admiralty to come to terms. The proprietor, an artist, is apparently holding out for an extraordinary figure. Major Gordon and Capt. Barnaby, R.M.L.I., will fly over Fifeshire to the new station during this week, and it is expected to be in working order by the 18th. The departure of the base from North Queensferry is a keen disappointment to the local inhabitants, whose trade has increased since the aviators came there.

It is reported from Germany that a fifth Parseval airship has just been ordered through Vickers, Ltd., at Bitterfeld for the British Navy.

MILITARY.

The following communiqué has been received:

Royal Flying Corps (Military Wing).—Diary of work for week ending January 31st, 1914.

Flying Depot (S. Farnborough).—The officer pilots were out daily during the week, and experimental work and repairs were continued as usual.

No. 2 Squadron (Montrose).—Reconnaissance training was recommenced in the Squadron since the move to the new aerodrome is now completed.

No. 3 Squadron (Netheravon).—Machines were out nearly every day of the week.

No. 4 Squadron (Netheravon).—The officer and N.C.O. pilots of the Squadron made numerous flights during the week, and some experimental work was carried out.

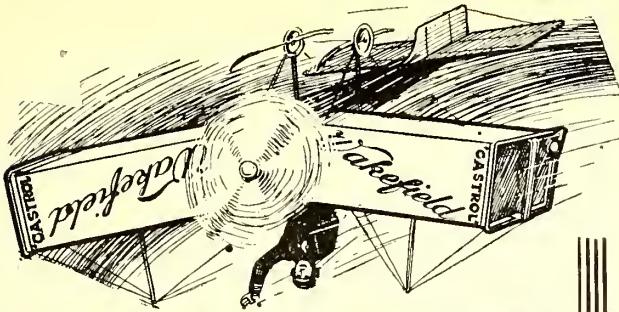
No. 5 Squadron (S. Farnborough).—Several machines were out during the week with a total of 27 hours 14 minutes, and a total mileage of 1,709 miles was flown.

No. 6 Squadron (S. Farnborough).—This squadron is now being formed and organised by Captain Becke.

War Office, February 4th, 1914.

It is with great regret one records the most serious accident, excepting that to the late Major Merrick, which has yet occurred at the Central Flying School, which has been notable throughout its career for its immunity from serious mishaps. On Wednesday last Sub.-Lieut. Smyth-Piggott, R.N., was flying as a passenger on a 50-h.p. Avro biplane, with Lt. Soames as pilot, when something went wrong with the machine and it struck the ground nose first. Mr. Piggott had both his legs broken through the front of the machine telescoping, and at the moment of writing is still in a precarious condition, though it is hoped that he may recover. It is, however, almost certain he will never be able to fly again. Mr. Soames sustained severe concussion, and also injured his back, his safety belt fortunately preventing more serious injury.

One gathers that it is generally thought that a control wire broke in the air, though the form of the accident would

**MR. B. C. HUCKS**

AND

MR. G. HAMEL

lubricate their engines with

WAKEFIELD**'CASTROL'**

Regd.

MOTOR OIL

FOR THEIR 'LOOPING' EXHIBITIONS.

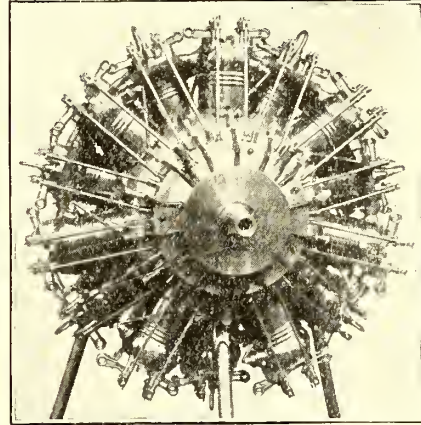
Is it possible for us to advance more convincing proof of 'Castrol' excellence?

C. C. WAKEFIELD & CO.,
Wakefield House, Cheapside, London, E.C.

C. D. C.

**SALMSON
AERO-ENGINES**

SYSTEM CANTON - UNNÉ.

'Phone No.:
7 Stroud.Tele.
Address:
Humpidge,
Cainscross.**The Dudbridge Iron Works, Ltd.**
STROUD, ENGLAND.

London Office:—87, Victoria Street, S.W.

'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

WHITE and THOMPSON Ltd.

SOLE CONCESSIONAIRES

FOR THE

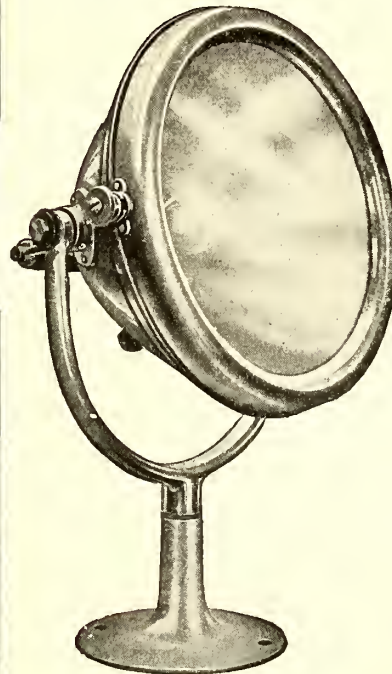
CURTISS**FLYING BOATS****and ENGINES**

IN THE UNITED KINGDOM

AND THE

BRITISH COLONIES

MIDDLETON, BOGNOR, SUSSEX

Telephone—
48 BognorTelegrams—
"Soaring," Bognor**ELECTRIC LIGHT**FOR
WATER-
PLANESThis is part of
our Standard
Lighting Set,
and we shall
appreciate en-
quiries for any
class of Electric
Lighting for
Cars, Launches
or Flying
Machines.**RICHARD PAPE, Ltd.,**
BELVEDERE, KENT.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

equally indicate a side-slip and nose-dive. The machines at the Central Flying School are so thoroughly well looked after that it is highly improbable that a wire broke; but in any case the mere fact that it should be thought possible indicates the wisdom of Colonel Sykes' remarks that aileron control should be used instead of a warp, as is done in the new Avros and Sopwiths. These 50 h.p. Avros, though excellent machines of their kind, are all warping-wing machines in which, as in the small Blériots, the warp has little effect, except that the continual use of the warp causes the wings to lose their lifting power sooner than they would in rigid-wing machines. Also, control wires are also load wires, which is bad practice. At no time has a 50-h.p. machine been really satisfactory for passenger work in a wind, and it is quite time that all the 50-h.p. machines at the school were replaced by those of greater horse-power. These Avros, however, would still remain excellent machines for pilots practising alone.

One learns on the authority of the "Daily Mail," in a paragraph which one would judge from internal evidence to be inspired from an inside source, that it is the intention of the War Office to arrange flights from aerodrome to aerodrome by squadrons or flights of the Military Wing. If the Press of the country are afforded opportunities for knowing when and where these flights are to take place, they will undoubtedly be of great service in stirring up interest in aerial defence among the people of the country; but if they are conducted with the modesty which seems to afflict the Royal Flying Corps, good opportunities will have been wasted, though undoubtedly quite a good deal of useful knowledge may be obtained. One trusts, however, that under the new and enlightened direction of the Department of Military Aeronautics, these cross-country flights will be organised much as recruiting marches by infantry battalions are arranged. It will be remembered that action of this kind was suggested a considerable time ago in this paper.

A detachment of the Royal Flying Corps, Military Wing, has for some time been carrying out experiments at Hythe in connection with the Musketry School there. Four sheds have been erected on St. Martin's Plain, near Shorncliffe Camp. The machines in use at present are two Henry Farmans (80-h.p. Gnoms) which have been there for the past two months. Recently Blériot 260 (tandem, 80-h.p. Gnome) arrived, and last week the F.E. 2 (604), the gun-carrying biplane built by the Royal Aircraft Factory, also arrived. This machine is a biplane with a 70-h.p. Renault; the chassis is of the usual B.E. type; it has tail booms arranged in the Henri Farman manner, and a nacelle similar to that of the Vickers armed biplane. The propeller is of the usual four-bladed B.E. type. A motor workshop and transport lorry, together with some R.F.C. cars, make up the equipment of the detachment.

At Montrose the changeable weather of the last week broke up the flying considerably, but caused the few good spells to be used to the fullest extent. Flying was impossible on Monday, but the next day three machines were out. Lieuts. Dawes and Martyn flew B.E. 228, and Lieut. Corballis was out on B.E. 232. B.E. 229 was to have flown, but a backfire in starting up caused some damage and put her out of action for the day. The same machines also flew next day, and although Thursday was dull, three machines were wheeled out but there was no flying. Friday was a busy day. Lieuts. Corballis, Martyn, Lewis and Lawrence were flying in B.E.s 226 and 228, and Lieut. Dawes took up Major Burke, O.C. No. 2 Squadron, in B.E. 229. Capt. Dawes, with Lieut. Harvey-Kelly in a Maurice Farman, arrived from Farnborough after being delayed a fortnight on the way.

Saturday is usually an "off" day, but Lieut. Corballis, in B.E. 232, flew north to Aberdeen and did some fine flying over the aerodrome on his return. Lieut. Lawrence, on B.E. 226, left for Edinburgh and appears to have stayed over the weekend, as he had not returned by night. Lieuts. Dawes and Martyn flew B.E. 229, and Lieut. Empson went up in B.E. 233. B.E. 228 was out of its shed but sat still. Two men of the Naval Wing visited the aerodrome and had out the Short biplane, testing the engine, but put it back in the shed again after overhauling it.

Capt. Dawes and Lieut. Harvey-Kelly had a narrow escape from falling into the sea during their flight north this week.

They had started from York and were over the sea when the engine commenced to misfire, owing to loss of petrol through leakage. Almost the last revolution of the engine landed them on the sands of Whitley Bay. The leakage was put right, and more petrol being procured, a start was made later. They had only gone about a mile when the engine suddenly stopped, and a heavy landing was made in a field at Hartley, several struts being broken. Mechanics were wired for from Montrose, and the officers put up overnight at Whitley. Next day the machine was put right and the machine flew as far as Lamber-ton, about $3\frac{1}{2}$ miles from Berwick, where it came down again with engine trouble. A couple of mechanics followed it up and put it right, and on the following day (Thursday) it reached Montrose safely.

The work on the sheds is being rushed on, the contractors working night and day to finish them in time.

It is satisfactory to note that, among the rush for B.E.s, the well-tried Farman machines have not been altogether neglected by the War Office. On Thursday last M. Verrier flew the sixth Maurice Farman of 1914 to Farnborough, and one learns indirectly that sixteen other Farmans are to be delivered by March.

FRANCE.

The Budget Commission has passed a vote of six million francs to be expended for naval aviation purposes.

Three Nieuports (100-h.p. Gnome) successfully passed the official reception tests for the French army at Villacoublay on the 4th inst.

Two Maurice and two Henri Farmans passed their tests on the same day at Buc.

Last Wednesday, February 4th, in favourable weather, Captain Bernard-Thierry and Sergeant Moutach resumed their journey from Pau to Toulouse on their Blériot (50-h.p. Gnome). On the same day Lieuts. Mathieu and Bréhier flew from Pau to Tarbes and back, also on Blériot monoplanes.

Three N.C.O.'s have just taken their military brevets at the Blériot School at Pau. The tests were made in company, and the necessary 250-km. triangle embraced Pau-Dax-Tarbes.

The military aviation centre at Crotoy is being broken up. Captain Gérard and Lieut. Vuillemin have taken their machine to Reims, and Lieuts. Biban and Thenault have taken theirs to Douay. On the day of disbandment, February 1st, the officers and men erected a tablet in memory of Lieut. Poutein, who died on service on October 31st, 1912.

GERMANY.

Lunéville has again witnessed the arrival of two German army men on an aeroplane. Starting from Strasburg, Lieut. Prestien, with Lieut. Goiner on an Albatros biplane, made for Metz in company of Lieut. Thiele, but soon lost him. Following the course of the railway lines, Lieut. Prestien turned to the right instead of the left at Saarburg, and crossed the frontier for six miles, not finding his mistake till he saw Lunéville in the valley below. He immediately landed and went to the Mairie to announce the arrival, whereupon the chiefs of the garrison at Lunéville came over to investigate. Despite accounts to the contrary, the officers were kept at Lunéville overnight and slept at headquarters, after informing the Metz authorities of their contretemps. There was little or no excitement at Lunéville or Paris at the incident, and repetitions are hardly to be totally avoided so long as Metz, the huge German frontier-fortress, is made the destination of so many aerial journeys. The aerial borderline is hard to tell, and the plans on which Lunéville and Metz are built are so strikingly similar that German officers have believed themselves to be on German territory until disillusioned by the French tongue.

The second Schütte-Lanz airship ordered by the German War Office is about to begin its trial trips, which will be made in the surroundings of Mannheim. The vessel is 25 metres longer than was the first, 150 metres (500 ft.) from end to end, and has three nacelles instead of two. Its ultimate home will be Liegnitz.—B.

On Friday, February 6th, German military aviation received a double blow. Lieut. Soeliner was flying over Bromberg when he fell from a great height onto the roof of the engineers' barracks. He was instantly killed. Almost at the same moment a sub-officer of one of the Silesian regiments fell on the railway barracks and was killed also.

On February 7th the German military airship Z. VII flew from Friedrichshafen to Potsdam, carrying officials of the War Office. At Potsdam she was officially taken over by the army, and the Z. V, formerly stationed at Potsdam, was moved to Johannisthal. The journey which from Friedrichshafen is about 360 miles in length, occupied 8½ hours with a following wind, so evidently the airship was not doing full speed.

The Z.VII is reported to be 132 metres (430 ft.) long, 14 metres (45 ft.) diameter, and to be fitted with four motors of 150-h.p. each. The theoretical speed is 21 metres per second, or about 45 m.p.h. The stabilising planes and rudders are much larger than on preceding types. Provision is made for several machine-guns. The vessel can climb to 6,500 feet with full load. Special arrangements are made for dumping all the petrol, oil and water tanks overboard in the event of sudden leakage in the balloon. The ship is expected to keep the air for 50 hours at a time.

ITALY.

The improved weather and natural reaction after a period of enforced inactivity have resulted in a number of notable flights during the last week by military pilots. Specially interesting was a high flight at Turin by Non-Com. Officer Petazzi, who took up a passenger to some 10,000 ft. on a De Dion-engined M. Farman; and as a first effort the short escadrille flight from Tripoli to Aziziah and back last week, when five machines (I opine Farmans) did a successful trip of 80 miles at 5,000 ft.

The dirigibles have beaten all records for activity too. To take them in order, P. 3 left Vigna di Ville in packing-cases, trucks, etc., bound for the new untenanted hangar at Turin, a rather dangerous method of travel, but no doubt economical.

P. 4 left Campalto on 1st inst. for a trip to the Eastern frontier, close to which she came down, and the crew took nourishment. The site chosen for landing was Asiago, a town where winter sports are pursued at well over 3,000 ft. above sea-level. The vessel made a happy return home at a later hour. On the 5th inst. she journeyed to Turin—not out for speed—and did the 300-odd miles in a comfortable 7 hours, including calls and phonograms and the usual Milan fog.

M. II, now "City of Ferrara," went forth from that city to

meet the Parseval from Venice on another day. After exchanging (presumably) greetings, the ships returned to their respective sheds.

M.III has been continuing her trial flights and, now that P.3 has been got off their hands, the factory will be about turning out one of the new V series, about which everyone is so much interested.

The "City of Milan" has been pursuing the higher regions since my last. 2,400 metres (7,500 ft.) was reached on January 30th. The mise-à-point of a new dirigible must appear a long business to the profane. The vessel's descents are said to be remarkably free from any symptoms of instability, due in theory to her external air-cover.—T. S. HARVEY.

BELGIUM

On Wednesday last Lieut. Liédd and Lieut. Schmit flew from Brasschaet to Etterbeck, taking 1 hr. 20 mins. for the journey. Next day they flew to Liège. Lieut. Daumerie passed for his military brevet at Brasschaet on Wednesday.

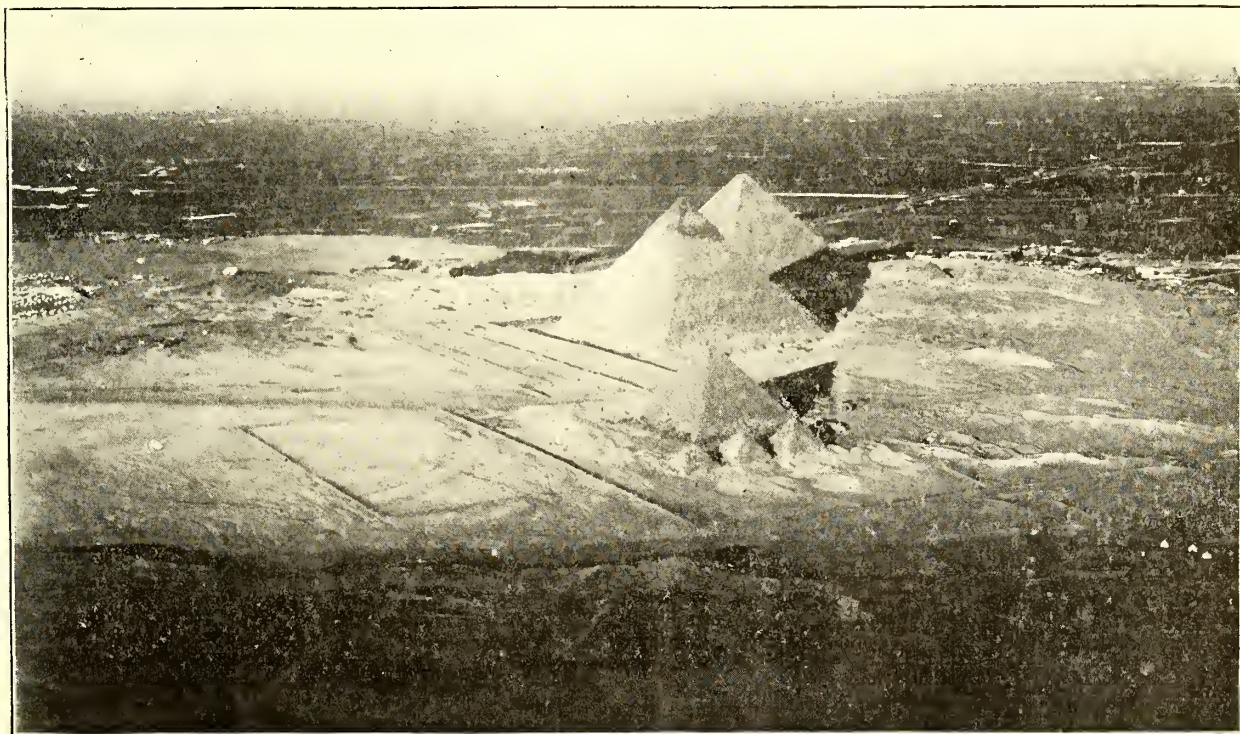
On February 4th Lieut. Soumoy put the Belgian military height record up to 2,500 metres (8,100 ft.). On the same day Lieut. Jaumotte flew against a strong wind from Brussels to Brasschaet-Namur, a distance of 100 kms. (60 miles), in 8 hrs. 30 mins., which is about record for sloth.

U. S. A.

Capt. W. Irving Chambers, U.S.N., writing in "Aero and Hydro" (Chicago), gives a review of work done by the U.S. naval fliers during the past year. Up till the end of July, 1913 (from August, 1912, apparently), 14 naval fliers made 2,118 flights, totalling 502 hours, 27,100 miles, and carrying 1,470 passengers. Seven machines—three Curtiss hydros, one Curtiss flying-boat, one Burgess flying-boat, and two Wright machines—account for 498 hours of this total.

Improvements in motor reliability have been marked, but the writer deplores the lack in the machine of "rugged characteristics," which we translate as meaning robustness.

Tests have been or are being carried out with a catapult launcher and a Curtiss-Sperry stabiliser. Since the date of the report from which these particulars are extracted three Curtiss and one Burgess flying-boat have been added to the fleet, and one Curtiss hydro has been converted to an amphibian with



The Pyramids of Ghizeh, photographed from M. Bonnier's Nieuport, and sent by a mutual friend with M. Bonnier's compliments to "The Aeroplane." On the left is the camp of the British Army of Occupation, on the right is Heliopolis, in the distance is Cairo and the Nile. This is the first photograph of the Pyramids taken from aloft.

considerable success. The question of standardised control is being considered, and it is expected that the U.S.N. will shortly insist on uniformity in this respect in all machines supplied.

Experiments with model floats and hulls are being carried out at the navy departments' model basin, and an advisory committee on aeronautics, on which the navy is represented, has been appointed to supervise experiments in aerodynamics and to co-ordinate the work of this type carried out at various laboratories in the U.S.

Lieut. H. P. Post, of the United States Army flying corps, was killed on February 9th at San Diego, California, by falling 500 ft. from an aeroplane while he was flying over the bay. It is stated by spectators that the engine exploded, throwing the pilot out of the machine. The bad state in which the U.S. Army machines are kept is notorious, and the accident is more likely to have been caused by a breakage in the machine.

SIAM.

Captain Nai Thip, the Siamese pilot, has just taken delivery of two Nieuport monoplanes of 50 and 28 h.p. at Bangkok. He expresses himself very pleased after flying them.

World's Duration Records.

Bruno Langer, the youthful pilot of the Luftfahrzeug Gesellschaft, put up a new world's record on February 3rd, remaining aloft 14 hrs. 7 mins., beating Fourny's previous best by 50 mins. Ascending at 8.8 a.m. at Johannisthal, Langer stayed in the air until 10.15 p.m., circling Johannisthal and its vicinity. The air was very cold and so intensely still that Langer was able to remove his hands from the levers and while away his monotonous journey by reading. Langer's machine was a military steel Arrow biplane, built by the Luftfahrzeug Gesellschaft, and fitted with a 100-h.p. Mercedes motor; he had 145 gals. of petrol on board.—B.

The world's duration record, and, presumably, with it the distance record, was again beaten on February 7th, when Herr Ingold, flying a Pfeil (Arrow) plane, 100-h.p. Mercedes engine, flew without alighting for 16 hrs. 20 mins. Leaving Mülhausen at 7.35 a.m. he landed at Fürstenried at 11.55 p.m. It is said that he covered all told a distance of over 1,000 miles, which is about two-thirds of the Atlantic course, but as he was simply out to kill time, presumably his distance was not checked. The machine lifted 600 litres (950 lbs.) of petrol, and 60 litres (100 lbs.) of oil. The flight affords a powerful argument for those who believe in inherent stability, and in the fixed cylinder type of engine for long distance flying.

Mr. Hamel at Eastbourne.

On Saturday, February 7th, Mr. Gustav Hamel made a flight at the Eastbourne Aerodrome in a wind of 50-55 miles an hour, and in pouring rain. Despite the unfavourable weather, fifty or sixty motor-cars full of people arrived at the aerodrome, and the flight was undertaken that those present might not be disappointed. Mr. Hamel "looped" four times.

Much annoyance has been expressed in this place at the unsportsmanlike manner in which so many spectators avoided paying at the first meeting. The employees of one store in the town subscribed ten shillings among themselves towards Mr. Hamel's expenses, and refused to accept free tickets.

On Sunday the weather was so bad that the meeting was cancelled. Despite this many people paid entrance money, and refused to take it back.

On Saturday next, the 14th inst., Mr. Hamel is giving a flying exhibition at Dunstall Park, Wolverhampton, and on the 22nd he will fly at Juvisy in his match with M. Garros. Probably his next exhibition will also be in the Midlands.

Mr. Hucks at Hull.

Mr. Hucks was at the Hedon Racecourse at Hull on Thursday, Friday, and Saturday last, the 5th, 6th and 7th inst. The enclosures were well filled.

At 3 p.m. on Thursday, Mr. Hucks went up in his passenger machine. Later he made six loops on his looping machine.

On Friday the wind was rather troublesome, but Mr. Hucks gave further demonstrations with his two-seater, and on the looper made eight more loops and another upside down flight. In the morning Mr. Hucks had flown around Hull and district carrying Mrs. Craig and her five-year-old son for 20 minutes.

Later Mr. Hucks also took up Master Billy Craig.

On Saturday morning there was a wind of over 50 m.p.h., which increased to over 60 at mid-day. At 3.30, however, Mr. Hucks took up his two-seater. Later, in the looper, having reached a height of 800 ft., he did a double loop, during which he was blown right outside the field. Fighting his way back to the centre of the course, he did a further six more before he landed, bringing his total up to date to 148.

Next Saturday, February 14th, Mr. Hucks will be flying at the Tally-Ho Club Grounds, at Birmingham.

The Beatty Flying School.

On Monday, February 16th, 1914, Mr. George W. Beatty will open at the London Aerodrome a new flying school. The equipment of the school will consist of three Wright biplanes, and one Handley Page monoplane, which are equipped respectively with 50 and 60 Gyro engines, a 40-h.p. Wright, and a 50-h.p. Gnome. The instructors of the school will be Mr. G. W. Beatty and Mr. E. A. Baumann, both fine fliers.

Pupils will start their training on a Wright machine, fitted with dual controls. These are being altered from the Wright type to the ordinary controls used in this country, that is, with a rudder bar for steering, and lever control for warping and elevating. The pupil will be trained in 15-minute periods, during each of which he will fly sitting beside the instructor, holding the dual control in his hand, and following exactly the movements which the pilot makes to control the aeroplane. Whilst the pupil is mastering flying, he learns landing with his engine cut off. As the pupil holds the control all the time, he is able to follow every movement which the pilot makes, both while starting, flying and landing.

Mr. Beatty will also have charge of the Handley Page flying school at Hendon, and pupils enrolling in this course will have: firstly, a three hours' training on the dual control Wright, and, secondly, complete their training and take their certificate upon the Handley Page monoplane. As the training will take place with the pilot in charge of the machine, flying will proceed practically continuously in any reasonable weather.

Nieuport Progress in England.

The headquarters of "The Nieuport (England) Limited" will in future be at 45, Great Marlborough Street, W., where the offices will be opened in a few days. The heads of the Paris concern were over in London this week specially to make arrangements before the opening of the season.

The Nieuport Company in France is studying at the present moment some very interesting machines. The new 80-h.p. artillery scout has given very excellent results in its trials, as has also the special destroyer, the new armoured machine constructed for fighting airships with a 160-h.p. engine.

The English company will exhibit at the Olympia Show three very interesting machines, notably a seaplane of the type supplied to the French Admiralty; and one notes with interest that the number of Nieuport hydro-aeroplanes in the French navy is larger than that of all the other makes put together.

British Enterprise at Last.

One is glad to see that, for the first time, British manufacturers feel themselves sufficiently confident in their products to enter for big international aerial events. Firstly, the Sopwith Aviation Co., Ltd., have sent in an entry for the Schneider Cup (25,000 franc prize). This race will take place at Monaco on April 20th, the distance being 150 miles over the sea, round a five-miles course. For the Gordon-Bennett Cup, A. V. Roe and Co., Ltd., and the Sopwith Aviation Co., Ltd., have both sent in entries.

The Wight Seaplane at Work.

Sir J. Samuel White and Co.'s "Wight" seaplane, 160-h.p. Gnome, has again been showing her paces on the Solent. Mr. Gordon England having now, happily, recovered from his recent accident—with the exception of some stiffness of the leg—which, however, does not incommode him in flying. Experiments have been made with various propellers, with the result that a speed of 72 m.p.h. has now been attained, a noteworthy result in a seaplane of this capacity. She is now, in fact, by far the fastest propeller-driven seaplane in existence, and probably the fastest propeller-driven aeroplane of any kind. Along with this speed she possesses great lifting power, so that her all-round efficiency is enormously high.

Further Developments of Military Aviation.

On February 4th, Lieut.-Col. F. H. Sykes, Commandant Royal Flying Corps, Military Wing, read to the Aeronautical Society a paper bearing the above title. It was in many ways the most important paper yet read before the Society, and one was pleased to see that the meeting was very well attended. In fact, it appeared to be the biggest audience yet assembled at the Royal United Services' Institute. The chair was taken by Lord Sydenham, and the audience included almost everyone of note connected with Naval and Military aviation and with the aeroplane trade. The paper is too long to reproduce verbatim, so one must be content with giving Colonel Sykes' chief points. It will be noticed how closely his views, formed after much hard work and bitter experience, agree with opinions which have been gathered from practical men and set forth from time to time in this paper.

The lecturer said:—"I propose to-night to deal with the subject in the light of a year's progress. I make no excuse for reiterating the strong links which I feel bind soldier, sailor, designer and aircraft constructor in this matter. Rapidity of progress is essential and it can only be gained by cohesion of effort, lack of friction, and mutual understanding. The Service must remember that the aeroplane designer has to live and is not always merely chasing "X" with a slide rule: the constructor that the soldier is not only pipe-clay and red tape, and that there is sometimes method in his madness. The object of military aviation is the unselfish service of the State. It is essential that agreement should be promoted as to general lines of work needed and advisable, progress as to types of aircraft possible, and how they are to be built and used. In this connection we must remember that in the Services 'the best is often the enemy of the good.' We cannot only look for what we want in the future. We must have a very tangible something ready for war in the present.

"The past year has been one of great interest. Safety, speed, strength, weight-carrying powers, climbing, and all-round efficiency have progressed. The burden of our poor General Brown-Jones of last year has indirectly been lightened. But directly, though the height record now stands at over 20,000 feet, the strategic problem of broken roads, railways and bridges, remains unaffected. Though an endurance record of nearly 13,000 miles in 39 consecutive days was carried out last year, weary, hungry, pack-carrying infantry are not materially assisted in their efforts to foot-slog an inch further through heavy mud or dust. Though Védérines has 'done' Egypt by air, though Mr. Orville Wright now 'considers the trans-Atlantic flight a possibility,' the strain on generals and staff is much as it was. Even the most brilliant gyrations of "loopers" leave Brown-Jones cold when grappling with how to beat the enemy.

"The first improvement is undoubtedly that of general airworthiness. A most marked advance has been made in long day-in day-out flying, almost irrespective of weather. I remember my delight on the evening of my lecture to this Society last year on receiving a telegram to the effect that the five aeroplanes which then went to form the nucleus of our second squadron, had all safely reached their new station at Montrose. The flight from Farnborough is a fine one to-day, but a year ago it was a splendid flight, more especially as the weather conditions were bad. It took about a fortnight. Lately several of our aeroplanes have effected the same journey, under almost equally adverse wind conditions, in two days, and it has twice been done, in good weather, in one day (once without a stop of any sort). Before and after the Irish manoeuvres, our aircraft had to move some 400 miles out to the manoeuvre area and the same back (including two crossings of the Irish Sea), in addition to the actual work carried out while on manoeuvres. This was done without serious hitch.

"I am not quite certain that sufficient attention has been paid by designers to the fact that flying in high winds has been very much on the increase during the year and that factors of safety have therefore decreased. This is the more important because such strides are being made in the direction of variable speed.

"Another marked improvement is in the climbing ability of the average aeroplane. A service machine must be able to lift and climb well with a full load in windy weather, and four

hundred feet a minute is now quite ordinary. The notable advance made in variable speed, as exemplified, for instance, in the latest Sopwith, have helped greatly in the matter of landing in restricted areas.

"One cannot consider airworthiness without touching on the question of wing-warping as opposed to flaps. There is no doubt that the continual flicking about during a long flight of the control lever, caused by the self-warping of wings in a wind, is very tiring to the pilot. Further, the warping wing requires more keeping in truth than one fitted with flaps. The dismantling and general handling of wings fitted with flaps is, besides, easier, quicker, and less liable to mistake. There is, I think rightly, a growing tendency to substitute flaps for warping.

"Bad landings must be expected from aeroplanes which are often called upon to bring back information to, and land in, a small field, probably surrounded by trees. Landing gears have considerably improved but they still cannot withstand really rough treatment.

A really reliable good engine of sufficient power is much wanted. This remark applies equally to British and foreign makes. I would add that a very intricate engine, whatever "star" performances it may carry out under the eye of its maker and his pet mechanic, is not much use for the everyday purposes for which we want it.

On Observation.

"As a result of work done during manoeuvres, it would seem that given sufficient aircraft, failure to locate the enemy's movements may be due to two causes:—First, failure to carry out the reconnaissance owing to bad weather, engine trouble, failing light, etc.; and, second, failure owing to bad training, lack of skill in observation, and to measures taken by the enemy to conceal himself. None can control the weather, and engine failure is not altogether preventable. Knowledge, experience, training, the very careful selection of observers, and plenty of practice for them are amongst the obvious remedies.

"It is quite possible that some aeronauts do not readily find their way. But there is no abstruse question of navigation about it: it is mainly one of eye for country, aptitude for reconnaissance, and practice (for which many machines, preferably of the propeller type, are necessary).

"A sound military knowledge is also essential. It is so pleasant in peace to go up for a 'joy ride'; to feel the strong, yet delicate, machine bear one gently into the rushing clear air; it is pure exhilaration to watch the colours of the earth dim into greyness and gradually into purplish haze. But go up as an observer in war, your brain slow and tired after many days and nights of strain. Go up well knowing the fallibility of your machine. Go up feeling that your flier is weary, that your machine and engine are tired. Know that much, very much depends on you, your vision, decision, accuracy and certainty. You see something. Your flier throttles down to the lowest safe flying speed. Unless your faculties are well trained, you have passed it and have not decided what it is.

"It is probable that the climate of the theatre of war will much affect the amount of air reconnaissance possible. Perhaps even, on occasions, columns may take advantage of lines of advance known to be more than usually mist-covered. Such areas should be noted beforehand, both by troops and by aircraft.

"Heights flown during reconnaissance must be governed largely by the state of the atmosphere, and the consequent ease of observation. Questions of immunity from bullets must not affect this. Such immunity as we have in immediate sight is quite promising. If the flier, observer, and engine are protected by armour they are safe from rifle fire at, say, 3,500 feet. As regards spars, there is, I think, really not very much to fear. The factor of safety is good, as it is only in the unlikely event of two bullets piercing the spar in immediate proximity, and at right angles to its length, that serious danger may be apprehended. With reference to wires, it is necessary not merely that two separate wires should be cut, but that they should be interdependent. The only other vulnerable spot as far as I can see is the propeller boss.

"Photography is a most useful auxiliary to the observer, who must, however, not use it to save himself. He must

observe just as accurately and intently as if he had no camera. In my opinion, aerial photography is well worth developing.

"With regard to night work, the great difficulty is that aviation motors are still far from being really reliable, and enforced landings are dangerous. The lights carried on aeroplanes for flying by night across country are still in an experimental stage. The problems are those of weight, safety as regards fire, lack of glare and good diffusion of light, and range of beam.

"To sum up the question of observation, although a very solid, all-round advance has been made in day work, night work has shown no tangible results. Night work at present lies in the scope of the aeroplane which can for certain fly for fourteen hours with two engines and fuel for this endurance.

Intercommunication.

"The question of the best means of intercommunication is a difficult one. Wireless will undoubtedly be one of the best methods of transmitting from aircraft the information collected in reconnaissance. It was used with success by the Army airships on last year's manoeuvres, and the results gained were, I believe, in advance of anything which has hitherto been done either in England or abroad. In hilly or very closed country wireless transmission is essential. But the whole question of wireless in connection with aircraft is a thorny one. There are, for instance, the well-known difficulties in regard to tapping and jamming. Close study and much experiment is necessary. The prospects of using cipher for wireless messages are hopeful, though messages regarding reconnaissance call for quick transmission when sent from a craft moving at 70 miles an hour, whilst the ordinary process of enciphering is slow.

"The observer must sometimes decide instantly whether it is desirable to transmit his information direct to the troops most concerned or to the staff. It will often be advisable to drop a message bag with some urgent piece of information in order that the news may be received at once. It requires considerable practice to drop messages in this way, and from some types of aeroplanes it is dangerous to do so owing to the possibility of a bag being caught by the propeller. The bags also sometimes do not reach their destination. On the whole, then, intercommunication still presents many difficulties, and the present more generally adopted system of landing for the transmission of information on the ground must be adhered to for a time.

Handling in Information.

"All experience has tended to emphasise the necessity of having the landing ground very close to headquarters. In order to ensure this the best plan is for the officer responsible for ground arrangements to survey the area from the air. The most likely fields are more easily spotted in this way than by any amount of reconnaissance by road. The larger the field the better, but in this connection it is interesting to note that it has been found that some fields which are just too small to be of use as landing grounds for 70-h.p. Renault B.E.'s, are just large enough for M. Farman's. For this reason it is quite possible that in some types of country information obtained by an observer in a M. Farman will be in the hands of the General more quickly than that obtained in a very much faster craft.

"For peace training work it is, I think, a good suggestion that all garrisons should look through their areas with a view to recommending one or several good landing grounds in their vicinity. Mayors of towns might also be asked to do the same. Local football grounds would in many cases be suitable, and an undertaking would, of course, be given that the grounds would not be used by the R.F.C. on Saturdays or when otherwise required. Here is a golden opportunity for Mayors! A Royal Flying Corps officer would then be sent round to see if the grounds were really suitable and draw up a rough report for inclusion in an air-route handbook which could then be compiled. We have already collected much data for such a book.

"There are many areas in the British Isles which demand very slow landing machines if constant mishaps are not to be the rule. Possibly air or ground brakes may overcome this difficulty. The method of altering the angle of incidence while the machine is in flight does not appear to be a sound solution.

"Landing grounds should preferably be selected well away from sheets of water or low-lying ground, as it may be found that morning and evening reconnaissance work will be much impeded by mist when the surrounding country is comparatively clear.

Ground Organisation.

"Added experience only goes to emphasise the necessity for a high degree of military training and technical efficiency in the ground personnel. Success in war will depend as much on the efficiency and keenness of the ground personnel as upon those whose duties are more essentially in the air. To the good air mechanic the machine for which he is responsible is his pride. I know men who regard their machine almost as a living thing. They are intensely proud of its achievements. We are most fortunate in the fact that our officers and men are splendid. Their efficiency is, indeed, increasing more rapidly than we have had a right to expect in view of the limited facilities so far obtained for training.

"I would like to add here a plea to manufacturers that they should look with sympathy on the Military Wing of the Royal Flying Corps, and co-operate with it in connection with the employment of good men when they leave the Corps. In two or three years' time some men will be leaving the Service. They will prove—I say it advisedly—to be possessed of a high standard of character and technical ability and will be available for and anxious to obtain skilled employment in aircraft factories. I will go further and ask employers not to throw obstacles in the way of men wishing to join the Military Wing or its Special Reserve.

"Some aeroplanes deteriorate more rapidly than others by being out in the open, but there is no doubt that they all deteriorate to a very considerable extent, and if the climate is damp or otherwise unfavourable, new planes will be required after each period of manoeuvres. More attention to varnishing the wood and exposed metal would probably well repay time given. A really good waterproofing dope is a want.

"An entirely efficient very light portable tent is still lacking. If the ideal in this respect is obtained, considerable expense and deterioration of aircraft might be obviated by at once sending the tent shed to the breakdown, instead of having to dismantle the machine, load it on a lorry and bring it in.

"The amount of transport and accessories required in the field is at present large. Our great aim, however, is to make the maintenance of aircraft as simple as that of the field gun.

Uses of Aircraft.

"Having dealt with matters of detail as they at present exist, I will now try to formulate ideas as to the employment of aircraft in war. Aerial reconnaissance itself is much; it will, however, be opposed, and that in the air. Anti-aircraft guns will assist, but probably insufficiently. This fact being granted, there is the obvious necessity for different types of aircraft. They will undoubtedly be required to perform several distinct duties, and thus the question of the most suitable composition and distribution of flying squadrons to different portions of an army, is clearly of much importance, both to soldiers and to aeroplane designers.

"Does the advanced cavalry require one type of craft? The Headquarters of an army another? Flanking divisions a third? Will there be a battle squadron? A fast scout flotilla? A squadron to hunt down and destroy airships and to attack aircraft bases? A low-flying armoured destroyer of ammunition parks and supply trains? A heavy transport conveyer? A breakdown and repair craft?

"For all these duties, slightly different types are required. Even now, one can hardly imagine the 'tabloid' Sopwith taking the rôle of a Sikorski argosy!

"Whatever the future may bring forth, I would like to emphasise as a principle the necessity for all possible standardisation in the reproduction of any one design. We must weigh most carefully the merits of any new design, but at the same time check any unsound diversity. Standardisation of types is at present undesirable, but standardisation within types is essential. Every new pattern and every fresh modification spells increased stores, increased transport, and, therefore, loss of readiness and mobility of the force as a whole. This question is one of less importance in the case of the Navy, as it has no difficulties of land transport, but it is vital to an Army.

"There are two schools of thought regarding fighting in the

ACCLES & POLLOCK, LIMITED ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
OLDBURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. **FOR AEROPLANES.**
ONE QUALITY—THE BEST.

We supply as a Speciality

WIRE STRANDS and CORDS for AEROPLANES and AIRSHIPS

made of bright galvanised and tinned music wire of
high breaking strain.



TRADE MARK.

Felten & Guillaume Carlswerk A. G. Mulheim-on-Rhine.

Agents for the United Kingdom:

For Insulated Wires and Cables for Electric Light and Transmission of Power, and for Rail Bonds:
R. R. TODD, 334, Birkbeck Bank Chambers, 329, High Holborn, London, W.C.

For all other Manufactures: **W. F. DENNIS & CO.**, 49, Queen Victoria Street, London, E.C.
Telephone: 343 BANK. Telegraphic Address: "FREDENNIS, LONDON."

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts
should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.



NOTHING BETTER

A. V. ROE & CO., LTD., MANCHESTER

ANZANI AERO ENGINES

1914 MODELS!

25 H.P. 3-CYL. "FAN."	70-80 H.P. 10-CYL.
25 & 30 H.P. 3-CYL. "Y's."	80-90 H.P. 10-CYL.
40-45 H.P. 6-CYL.	100 H.P. 10-CYL.
50-55 H.P. 6-CYL.	125 H.P. 10-CYL.
60-65 H.P. 10-CYL.	200 H.P. 20-CYL.

All Enquiries to be sent to

THE BRITISH ANZANI ENGINE CO. LTD.

30, Regent St., Piccadilly, S.W.

'Phone: 280 Gerrard.

Wire: "Anzani, Piccy," London.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

The Funniest Book on Aviation.

"Lighter than Air"

OR THE AVIATORS GUYED

Of all Booksellers or direct from "The Aeroplane,"
166, Piccadilly. Post free 1s. 2d.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

air. The one holds that if an aeroplane is to fight, it must carry a passenger, gun and ammunition. It will be so large and heavy that it will be slow, also it will lack the means of inter-communication necessary for combined action, and it will be unable to come within range of a fast scout. The other view is that fighting in the air must occur if results are to be obtained. Given that one side has sufficient fighting machines, it should be impossible for the unarmed scout to approach the point where it desires to glean information.

"Aerial tactics will take much working out, and an aerial building policy can only be properly based upon them.

"A first requisite is the recognition of friend and foe. Instances do, and will, occur of rifle and gun fire being directed at aircraft, but it seems generally that troops refrain from firing owing to the impossibility of recognising friendly from hostile aeroplanes, and from fear of firing at friendly ones. Reliance cannot as yet be placed on recognising hostile aircraft by their type. Moreover, as the speed of aeroplanes increases the distances at which they must be identified in order to stand any chance of hitting them also increases. Black and white stripes painted on the under surface of the planes are distinguishable at two or three miles, according to the light, but an aeroplane cannot be recognised at any distance.

Suggestions for Constructors.

"First: I would mention the paramount necessity for a really reliable, suitable, high-powered, and silent engine.

"Second, is that of factors of safety under the conditions of present aerial flight.

"Third: the apparent advisability of flaps as opposed to warping.

"Fourth: a better landing gear to sustain the shock of landings such as must often be made in a Service machine.

"Fifth: Progress required in the directions of strength and simplicity in design and construction, so as to reduce the time and labour now required to keep aeroplanes and engines fit for constant service.

"Sixth: Time would be usefully expended on experiment for better methods of inter-communication between aeroplane and aeroplane and aeroplane and the ground.

"Seventh: Standardisation. There is method in the military insistence on limiting types to those absolutely essential and in requesting a rigorous standardisation of parts.

"Eighth: A large type of machine with, if necessary, multiple engines and propellers is now required.

Ninth: Invisibility.

Tenth: Air or ground brakes.

"In conclusion, from the Military point of view, I am glad to think that the words Sir John French used when kindly presiding at my lecture last year, have been to a certain extent taken to heart. He said, 'Aviation is one of the most important subjects to which the modern officer can pay attention at the present day.' Interest in and knowledge of the subject by both services have increased, and even public apathy has shown occasional signs of movement.

"We now have the ability to keep the air in most weathers. Great weight-lifting aeroplanes are an accomplished fact. I would, therefore, urge the British manufacturers to develop their designs for large machines; there can be no doubt that such machines will be required in war. I am aware that, however good the will, bricks cannot be made without straw. Nevertheless a year or even a few months' advantage *now*, may mean *much* later.

"This country is certainly not yet first in aerial strength, but the year's effort has been productive of such tangible progress as to show that we could attain aerial supremacy if we really meant to. Do we mean to? Believing as I do that land fighting and sea fighting will eventually wait on aerial fighting, I am convinced that we *should* make every possible effort to attain that end: and this effort should be made at once; we cannot afford to delay."

The Discussion.

Mr. Joynson-Hicks, M.P., agreed that standardisation was necessary. He was startled by the large number of types of machines which seemed to be required, and considered that the extension of the number of types would be detrimental. He also wanted to know whether the Flying Corps was to remain part of the Navy and Army, or to become a separate service. He was of the opinion that aeroplanes should be under the

command of Generals of Division, and not all directly under Headquarters' Staff.

Captain Clive Waterlow, R.E., R.F.C., thought it was rather hard that airships had been forgotten. He and others had spent many years on them, and it seemed love's labour lost. He would have liked at any rate a little farewell speech from Colonel Sykes. There was plenty of work for airships. On last manoeuvres they went out in mists when aeroplanes were useless, and by means of wireless they had communicated with a general of division in seven minutes, including the necessary clerical work, etc., and transmission from headquarters. They had also sent wireless messages from one dirigible to another. This had never been done on aeroplanes, or, indeed, on any other dirigibles. He thought that in the future the airship would be a huge machine compared with which a Zeppelin would be a toy. A speed of 80 m.p.h. was to be hoped for. Even in 1910, when there were no aeroplanes, a dirigible made a trip of $7\frac{1}{2}$ hours. There was not so much fatigue and mental strain involved in working airships, and the division of labour was wider.

Brig.-General Henderson, C.B., D.S.O., Director-General of Military Aeronautics, said he could not differ from Colonel Sykes, except in speculating as to the future. Referring to Mr. Joynson-Hicks' ideas of organisation, he remarked, with an unwonted touch of acerbity, that aeroplanes in war should be directly under the Commander-in-Chief. If each division had its own scouts, much valuable matériel would be wasted, for one would have several machines starting only a few miles apart each to do the same 100-mile trip. When the armies were at close quarters it might be worth while to decentralise and detach squadrons or flights to operate under divisional commanders for a time, but it would be better to wait and see what happened in war, and act accordingly. Dogmatism only came from those who were not responsible and had not studied the question. At present there were no effective fighting machine fit to stop a fast scout, but the fastest aeroplanes were not necessarily the best for scouting, a slow landing speed would often be more valuable.

Mr. G. Holt Thomas, the Aircraft Manufacturing Co., said he thought the progress of military aviation was really astounding. Speaking from personal experience, he thought the British Army pilots as a body far superior to anything the Continent could show, although, of course, abroad they could put up very fine individual fliers. If we progressed as at present we should have the best flying corps in the world, for we certainly had the men.

Major Baden-Powell thought that a pilot, an engineer, and an observer was all the crew even the biggest aeroplane could require. He did not think the large passenger-carrying capacity of dirigibles any very great recommendation in war. On the other hand, aeroplanes carrying a number of men might well be employed to destroy railway lines and other special work.

Lord Sydenham reviewed the lecture and remarked that although he thought aeroplanes would not greatly alter the principles of war, and would not affect cavalry operations to a great extent, the use of the new arm would be invaluable for transference of information. He speculated on the effect of an aeroplane in Napoleon's hands at the battle of Waterloo. He thought dirigibles should not be neglected, and that captive balloons were the best things from which to observe effect of gun fire. Aircraft gave back the command of a long battle front to the Commander-in-Chief just when it seemed to have become an affair for separate commands. Our air power could only be measured by the number of machines ready for immediate use, and the number of fully-trained pilots.

Colonel Sykes, in replying, briefly said that though he appreciated the possibilities of the airship, he thought that now the Army had abandoned them the only thing to do was to make the best of aeroplanes which we had. He regretted having hurt Captain Waterlow by omitting airships that evening, but the paper was devoted to heavier-than-air craft, and they did not come within its scope. He quite agreed that the command of air scouts in war should be centralised, at any rate for strategic scouting.

General Ruck, R.E., Chairman of the Aeronautical Society, proposed a vote of thanks to the Chairman of the evening.

Flying at Hendon.

Saturday 7th, equalled Saturday 31st, $\times 2$, from the weather point of view, but seldom has such a magnificent display of wind-fighting been seen at Hendon as that presented by M. Louis Noel on his old Maurice Farman. The weather was so shockingly bad—the wind was well over 45 miles per hour, and it was raining hard—that one had quite resigned oneself to a blank day; but Mr. Noel and a passenger taxied out into the middle of the aerodrome and commenced to get off immediately across the wind, so by the time they got to the north end of the aerodrome they were only about 50 ft. up. The first turn was one of the most unpleasant sights that has been seen at Hendon, but Mr. Noel got the machine round somehow and came back down across the wind southwards, with the prow of the machine almost facing up Collindale Avenue! At this time he was only about 30 feet up, and he turned into the wind over the Willows hangar, his life absolutely hanging on his engine, and crossed the fence at that low altitude at about three miles an hour. However, by industriously flying towards the Edgware Road, he got sufficiently high to turn, and went along to the railway embankment at well over 90 miles an hour. The turn northwards was another terrible sight, the machine appearing to sideslip several hundred yards, but he steadily climbed higher and higher, and after a second circuit of the aerodrome, to everyone's relief he headed for the sheds and landed with the engine running hard. The whole flight lasted but eight minutes, but it was quite enough for one afternoon.

Sunday was a blank day, owing to wind and rain, the first blank of the year.

Flying at Brooklands.

Brooklands has shown great activity during the spring weather. On Monday Messrs. Jones and Alcock were out in the morning on the Flanders and Sunbeam-Farman. Mr. Raynham took Mr. McGeagh Hurst up to 11,000 feet, whence they could see the Isle of Wight. The engine ran well the whole time. Mr. Hamel having left for Windsor in the morning returned during the afternoon and did two loops. He nearly landed in the sewage farm, his engine only just picking up in time. Mr. Barnwell flew back from Farnborough on the gun machine in 9 mins.—a new landing carriage is to be fitted. Mr. Kemp on a B.E. from Farnborough landed owing to engine trouble.

On Tuesday Mr. Jones was out. Mr. Barnwell put the "pumpkin" with the Vickers radial engine through an hour's test, taking Mr. Hinshelwood as passenger. Later he took up Mr. Boucier, the designer of the engine, which runs excellently. Mr. Raynham took a passenger to 11,000 feet again, this time the engine gradually dropped to 950 revs. The B.E. was out for engine test only. On Wednesday Mr. Spratt brought Mr. Kemp over on a new B.E. with vertical fins on top plane and an Avro tail. Both returned to Farnborough later on their respective machines. Mr. Raynham alone on the Avro went up to 15,000 feet, where his nose started to bleed. He glided from Brooklands to Hendon, arriving there at 5,000 feet, and returned later with Mr. Blackburn. This is probably the longest glide on record, being longer than the Cresta or the route from Jerusalem to Jericho. Mr. Barnwell was up to 7,000 feet on the Vickers-Blériot, and Mr. Jones up to 5,000 feet, and later to 2,500 feet on the Flanders. Mr. Alcock was also out.

On Thursday Mr. Jones was again out. He has become a very fine pilot. Mr. Raynham in the afternoon "kept down" with Mr. Barnwell on a box-kite for about 300 yards and then did half a circuit about two spans away from Mr. Jones, keeping absolutely level in height and speed with each in turn. On Friday Mr. Alcock was testing the Sunbeam engine before going to Eastchurch, which he did not do. On Saturday there was a real Sou'-wester. The D.F.W. has not been out. The Sopwith-Green machine is going back for overhaul. The Avro "pusher" is expected shortly. The Martinsyde new monoplane with everything streamlined is ready. There are always rumours of the Blériot works starting. The De Bolotoff crew say they cannot get nickel-chrome steel in England, so will not be out till April. Mr. Blackburn's machine progresses. Mr. Hamel is said to have been engaged for the summer. Mr. Sippe is now in command of the Bristol School. The Vickers School has been very busy all the week.

The Week's Work.

Weather Reports for Week Ending February 8th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Windy	Fair	Fair	Very Windy	Imposs.	Gale	—
Calshot ...	Fine	Fine	Fine	Fine	Fine	Wet	Rainy
Eastchurch ...	Calm	Calm	Breeze	Breeze	Windy	Gale	Windy
	Windy	Windy	Calm	Wind	High	Gale	Rain
Hendon ...	Windy	Windy	Windy	Gusty	Wind	Gale	Wind
			Fair		Fair	Rain	Gale
Montrose ...	Gale	Bright	Stormy	Dull	Hazy	Misty	—
Salisbury Plain	Imposs.	Windy	Windy	Misty	Imposs.	Very Windy	—
Shoreham ...	Calm	Calm	Calm	Windy	Windy	Wind	Wet
						Rain	
Waterloo ...	Gale	Gale	Gale	Gale	Gale	Gale	Gale
(Liverpool)							

School Reports.

Hendon.—At GRAHAME-WHITE SCHOOL: Instructors during week: Mr. Manton. Pupils with instructor on machine: Messrs. J. Graham, Jarker, Eldridge-Green, North, Barrs, Piercy, Cowley, Clarke and Moore. Straights alone: Messrs. North, Clarke, and Bjorkland. 8's or circes alone: Messrs. Bjorkland, Lillywhite, Howarth and Clarke. Certificate taken during week: Mr. Bjorkland. Machines in use: Graham-White biplane; Blériot mono.

At W. H. EWEN SCHOOL.—Instructors during week: M. Baumann and Mr. F. W. Goodden. Strts or rolls alone: Mr. Bankes-Price and Mr. Curtis. Circes alone: Mr. Murray. Machines in use: 35 h.p. Caudron tractor biplanes. On Thursday, Mr. F. W. Goodden fine exhibition flight lasting 50 mins.

At BLÉRIOT SCHOOL.—Instructor during week: M. J. Teulade. Two new pupils, Messrs. W. F. Cooper and M. O'Hagan joined school, doing strts and rolling on Tuesday, Friday and Saturday, showing already great progress. Mr. Gold good straights. Machines in use: Blériot monos.

At HALL FLYING SCHOOL: Instructor during week: Mr. J. L. Hall. Pupils with instructor on machine: Messrs. H. Gearing, H. C. G. Allen, D'Arcier, A. Brookes, on Avro cross-country flights at 2-3,000 feet. Strts alone: Mr. H. Gearing (4); Mr. D'Arcier (2); Mr. A. Brookes (2). Machines in use: One Avro, two Caudron tractors; one 35 Anzani-Blériot. Twelve passengers carried during week. Tuesday: Cinematograph film acted by Mr. J. L. Hall for B. and C. Company. Messrs. Pinniger and Cini mechanics passenger flights. Mr. Allen, new pupil, on his 35 Anzani-Blériot.

Brooklands.—At VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight, and Elsdon. Pupils with instructor on machine: Lts Crosbie (3); Prichard (10); Jackson (12); Capts Ross-Hume (9); Mansergh (6); Mr. Spencer Warwick (9); Mr. Hurst (1). Straights or rolls alone: Lt Crosbie (1); Lt Prichard (1). 8's or circes alone: Lt Prichard (4), Mr. Creagh (1) (biplane); Mr. Webb (2); Mr. Hinshelwood (1); Mr. Morgan (1) (mono). Machines in use: Two propeller biplanes; one mono.

At BRISTOL SCHOOL: Instructor during week: Mr. Halford. Pupils with instructor on machine: A.M. Locker (4); Lt Binney (5); Lt Lawrence (4). Strts or rolls alone: A.M. Locker (5); Lt Binney (5); Lt Ames (1); Lt Lawrence (2). 8's or circes alone: A.M. Locker (3). Machines in use: Two biplanes.

On Sunbeam Co.'s Maurice Farman, Mr. Jack Alcock out on Monday, Tuesday (to Hendon and back), Wednesday (cross-country), and Thursday, on each occasion with passengers.

Eastchurch. On Monday Mr. Gordon Bell was up on the new Short tractor (100-h.p. Gnome), and later to Grain.

Salisbury Plain (Bristol School): Instructors during week: Messrs. Jullerot and Voigt. Pupils with instructor on machine: Lt. George (4); Lt Barrett (5); Mr. Stutt (4); Lt Harman (3). Machines in use: Two biplanes; one tractor.

Shoreham Flying School.—Instructor during week: Mr. William H. Elliott. Strts or rolls alone: Messrs. R. P. Cannon, Purnell, A. Maskall, P. H. Maskall, Hayland-Wilson, Aikman, Midshipman Thompson and Lt Clemson. 8's or circes alone: Mr. R. P. Cannon, Lt Clemson. Machine in use: 45-h.p. Avro tractor biplane. Lt Clemson switched off and landed with machine turning. Now undergoing repairs.

Liverpool (Waterloo).—Gale all week, but sand yachting has proved a great success here.

"Beautifully smooth running, thereby adding to general comfort, in addition to saving engine power."—AEROPLANE.

PALMER CORD TYRES

fitted to your car will give you greater speed, greater comfort and greater safety, with reduced petrol consumption.

In the Palmer Cord Tyre Book you will find proof of the above. May we send you a copy?

Will you write for it to-day?

THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).

CRITCHETT WELDING & ENGINEERING CO., WELDING & BRAZING .. SPECIALISTS ..

Aluminium Welding Guaranteed.

Wire, Write or Phone

Tele. Address: Flexicable, Watloo, London. Phone: 2424 City.

Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.

HANGARS.

Any size built and fitted with

PERFECT SLIDING DOORS

obviating all the disadvantages of every present system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

GARAGES, CLUB HOUSES
and other buildings. *Estimates Free.*

WIRE-WOVE ROOFING COMPANY,
108, Queen Victoria St., London, E.C.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

CELLON

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

IMMEDIATE DELIVERY OF THE BEST DOPE.

Reg. Offices:—

17, OLD BROAD STREET, LONDON, E.C.

Telegrams: "AJAWB, LONDON."

Telephone: 5359 London Wall.

Factory:—

STIRLING CHEMICAL WORKS,
CANNING ROAD, STRATFORD, E.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4531 Holborn.

PATENTS.—How to Patent Inventions. Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

W. H. EWEN SCHOOL OF FLYING. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work, £50. Passenger flights from £2 2s.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to **HALL AVIATION Co.**, London Aerodrome, N.W.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

TUITION AT REDUCED FEES.—Pashley Bros. are prepared to take a limited number of pupils for R.A.C. brevet, at specially reduced fees.—Apply **PASHLEY BROS.**, Shoreham Aerodrome, Sussex.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from **THE SHOREHAM FLYING SCHOOL**, Shoreham Aerodrome, Sussex.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY**, Leeds.

CHAUVIERE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER Co., LTD.**, 307, Euston Road, London, N.W. Telephone: 912 North. Telegrams: "Aviprop," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.**, 1, Queen Victoria Street, London. Tel. 834 Bank.

ENGINES

FOR SALE.—100 h.p. Green, in perfect condition; radiators and all fittings; rev. counter, etc.—Box 530, c/o **THE AEROPLANE**, 166, Piccadilly, W.

FOR sale, 50 h.p. Gnome; condition as new, with six months' full guarantee; may be tried before purchase.—8, Monnt Road, Hendon.

RENAULT engines for sale, 100 h.p., 12 cylinders, latest 1913 type.—Apply, Box 532, c/o **THE AEROPLANE**, 166, Piccadilly, W.

EMPLOYMENT.

WANTED.—Young man (22) seeks situation as engine mechanic or fitter; experienced in school work; good references if required.—**R. DEBDEN**, 34, Albert Road, Addlestone.

WANTED, coverers; good wages to expert men.—Letters, Aerodrome, Eastbourne.

YOUNG draughtsman wanted; must have experience in aviation drawings.—Apply **SIR W. G. ARMSTRONG, WHITWORTH & Co., LTD.**, Aviation Department, Gosforth, Newcastle-on-Tyne.

MISCELLANEOUS.

INVENTORS' ideas developed. Experiments conducted. Models made. Highest skilled mechanics. Low charges. Secrecy guaranteed.—**BRAUN**, Engineer, King's Cross.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT Co., LTD.**, Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD.**, 130, Hackney Road. 'Phone 4770 Wall.

MODELS.

M.S.C. HIGH efficiency carved propellers, 1½d. per inch, up to 10 inches. Postage 1d. We stock everything for models. Send stamp for catalogue.—**MURRAY, SON & Co.**, 387a, High Road, High Cross, Tottenham, N.

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

'Phone: Kingston 869. 5d

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our **New Illustrated Models Catalogue** now ready, Contains Sopwith Tractor, Deperdussin, Bleriot, Canard, Clarke Mono, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic 10d. per doz. yds

S. J. KEMP & Co.,

CROWN WORKS, Kingston-on-Thames.

(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)

Every Requisite for Model Aeroplanes. Send 1d. for List.

Models of Every Description built promptly.

Phone 321 Kingston. Telegrams "Garage, Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

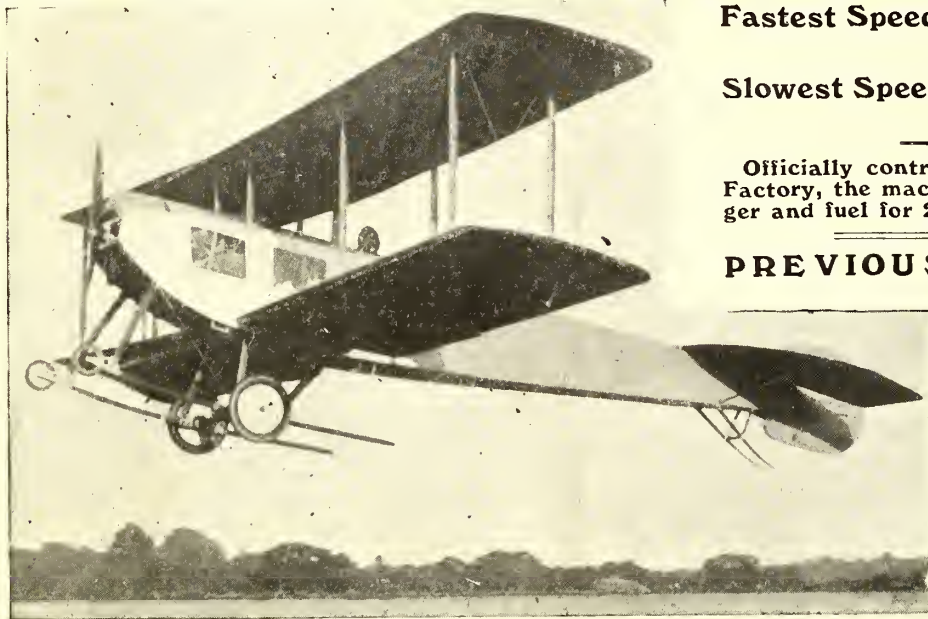
USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnome) beat all WORLD'S RECORDS FOR EFFICIENCY.



Fastest Speed 92 miles
(154 kms.) per hour.

Slowest Speed 36.9 miles
(61 kms.) per hour.

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

PREVIOUS RECORDS on the preceding type of SOPWITH BIPLANE (80 h.p. Gnome).

British Height Record
(Pilot alone) 11,450 ft.
British Height Record
(Pilot and 1 Passenger)
12,900 ft.

British Height Record
(Pilot and 2 Passengers) .. 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

Telegrams:
"SOPWITH KINGSTON."

FLYING AT HENDON

SATURDAY NEXT, FEBRUARY 14th, 1914

St. VALENTINE MEETING. 9 mile Grand Speed Handicap at 3.30.

COMING EVENTS.

Sat., Feb. 21st. SUBURBAN MEETING.

Sat., Feb. 28th. HENDON MEETING.

Sat., March 7th. MARCH MEETING.

Sat., March 14th. MIDDLESEX MEETING.

WINTER SEASON—RACES Every SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

Admission 6d., 1s., 2s. 6 (Children Half-price).
Motors (including chauffeur), 2s. 6

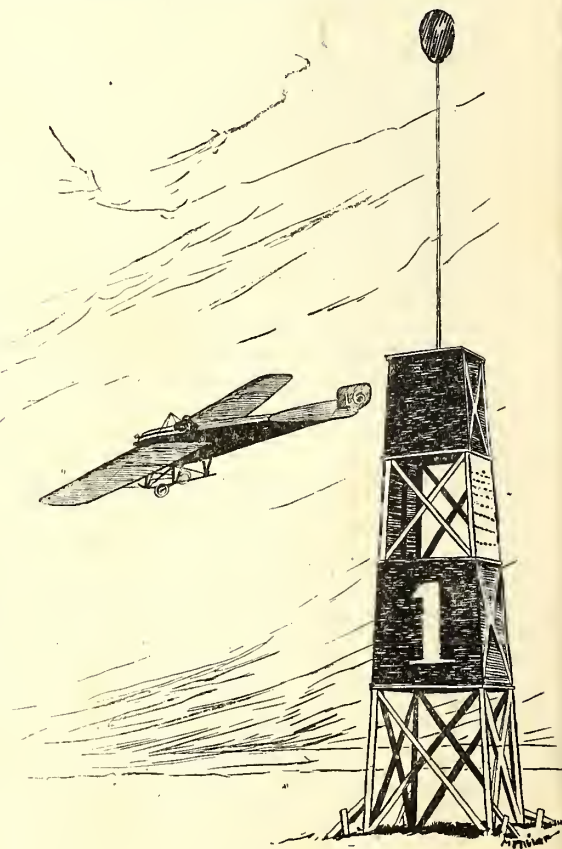
PASSENGER FLIGHTS DAILY FROM £2 2 0.

The London Aerodrome, Hendon

Proprietors : The Grahame-White Aviation Coy., Ltd.

HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."

LONDON: 166, Piccadilly, W. Phone: Mayfair 9555. Wires: "Claudigram, Piccy, London."



THE AEROPLANE



Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, FEBRUARY 19, 1914.

No. 8

"EXPERENTIA DOCET."



Mr. Harold Barnwell, Chief Instructor and Manager of the Vickers School at Brooklands. He is here seen in the Martin-Handasyde monoplane which he flies so well. He was one of the first men to fly in Great Britain, and certainly the first in Scotland, and is acknowledged to be one of our finest and most practical pilots.

Photograph by F. N. Birkett, Percy Road, Shepherds Bush, W.

The "Bristol" **Flying Schools**

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,
AEROPLANE WORKS
AND
FLYING GROUNDS—
EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9 MINSTER-ON-SEA.

Telegraphic Address :—"FLIGHT, EASTCHURCH."

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.		ABROAD.	
	s. d.		s. d.
3 months, post free	13	3 months, post free	2 9
6 " " "	3 3	6 " " "	5 6
12 " " "	6 6	12 " " "	11 0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Uses of Sport.

Ages and ages ago, when I was a very small boy, I remember being told a pious story of a wealthy person who permitted two poor little ragged boys to sweep the snow from his magnificent doorsteps. Presently, he came out and found a small boy seated astride of each of the couchant lions which decorated the balustrades of the said magnificent steps, and the two were indulging in an imaginary race. They explained to his indignant dignity that they were amusing themselves, and, at the same time, giving an extra polish to the erstwhile snowclad lions. "Ah, my boys," said he, wagging a reproving forefinger, "If you want to some day own a house like this, you must remember one thing, 'Business first, pleasure afterwards.'" I always thought he was a horrid prig, besides splitting his infinitives.

It will be remembered that in last week's issue of this paper the announcement was made that A. V. Roe and Co., Ltd., the Sopwith Aviation Co., Ltd., and White and Thompson, Ltd., of Bognor, each intend to enter seaplanes for the "Daily Mail" Circuit of Britain in August, that the Sopwith Company have entered a seaplane for the Schneider Cup race at Monaco in April, and that both the Sopwith and the Avro firms have entered machines for the Gordon-Bennett race in September. It is now announced that the Bristol Company has also entered for the Gordon-Bennett race. The two latter events are open to all nations, and if, as seems fairly certain, the British machines turn out for the start they will be the first British aeroplanes to take part in any of the classic international events abroad since Tabuteau's Bristol in the European Circuit. It is certainly much to the credit of these firms that they should have entered, and one wishes them every success for their enterprise, but the fact that there should have been so many great international competitions without a British entry sets one wondering what has become of British sportsmanship and British enterprise, or, perhaps, one should rather say, it makes one wonder whether British sportsmanship and enterprise are not something of a legend. One would have expected some private owner of wealth to have entered a machine even if no manufacturer did so.

History repeats itself with surprising regularity. In the early days of the motor trade the motor industry in this country suffered from public apathy much as the aeroplane does to-day, and it also suffered from the active hostility of certain sections of the public, which corresponded fairly closely to the hostility of certain official people and their friends to the aeroplane trade to-day. Then Mr. S. F. Edge went to France in 1902 and won the Gordon-Bennett motor race because all his opponents broke down, much as Mr. Grahame-White won the Gordon-Bennett aeroplane race in America because M. Leblanc broke down—which is no reflection on either winner, but shows that in neither case did we win by having the best machines. In the following motor G.B. race, held in Ireland in 1903, the British competitors never had a

look in, and the race was won by M. Jenatzy, a Belgian, on a Mercedes car of German make, still one of the best cars in the world. In the following aeroplane G.B. race at Eastchurch in 1911, the British competitors were equally outclassed, and the race was won by M. Weymann, a Franco-American from Haiti, on a Nieuport monoplane of French make, still one of the best aeroplanes.

German cars and French aeroplanes have continued to lead the world ever since until to-day, and to-day I think the parallel ceases, for I believe that, judged on pure efficiency for horse-power, the best aeroplanes are now made in England. That is to say, we, in this country, have now a sporting chance of capturing the world's aeroplane trade if we go the right way to work about it. One may here quote the peroration to Colonel Sykes' lecture published last week, and apply it to commercial supremacy as he applied it to military supremacy: "The year's effort has been productive of such tangible progress as to show that we could attain aerial supremacy if we really meant to. Do we mean to? I am convinced that we should make every possible effort to attain that end; and this effort should be made at once; we cannot afford to delay." That is the question. Are we going to take our chance now it is open to us, or are we going to let it slip?

An Example of the Past.

Let us now consider the motor trade again and see what has happened in its case. There are people who will tell you that British motor cars are the best in the world, and endeavour to prove the statement by pointing out that every British car factory is as busy as it can be. It is true that there are one or two British cars which in workmanship and material are as good as the best foreign cars, but some of our cars, which are perhaps the best in the world when judged as luxurious carriages, are hopelessly archaic when you look inside their beautiful bonnets; none of our cars can touch the Americans for price, and few can compete with the German or French cars for speed, or for holding the road when driven fast, and, incidentally, quite a few of our good small cars have French engines. Further, look at the first fifty cars that pass you on any road, and you will find that the majority of them are of foreign make.

Now, obviously, that is not as it should be. If we were as pre-eminent in motor building as some of our Jingo tradesmen would have us believe, we should not only be able to supply all our own market and that of our Colonies, but half the rest of the world as well—which we don't by a very long way. It is no argument to say that all our motor works are as busy as they can be. That only means that our capitalists are lacking in enterprise, and that, in consequence, our motor works are only a fraction of the size they ought to be. Probably, the Ford Motor Company's works in the States turn out more cars than all our works put together, and it is fairly safe to say that they sell more cars in the British Colonies than all the British makers do. That, of course, is done almost

entirely on price, but apart from American cars, the French and Germans do a bigger export trade than we do, and even poor little Italy makes a good show, and whereas we buy thousands of their cars, they hardly buy as many tens of ours. The reason why is not very far to seek. It is simply because their makers are better sportsmen and more enterprising than ours. After we took such a wholesale whacking in the Gordon-Bennett race in Ireland in 1903, our motor makers practically gave up racing. They had not the enterprise to build a decently fast car, so they cried "sour grapes," and tried to make out that racing was not worth the expense.

The Great Days of Racing.

Meantime, firms like the Canstatt-Daimler, Benz, Renault, Panhard, Clément-Bayard, Brasier, Diétrich, Itala, and Fiat went on racing, and their drivers, men with Homeric names like Jenatz, Lautenschlager, Hieronymus, Szisz, Amblard, Duray, Rougier, Farman, Gabriel, Wagner, Théry, Lancia, Nazarro, Cagno, and so forth, became world-wide heroes. We held a few little hole-and-corner races for transmogrified touring cars in the Isle of Man, and tried to persuade ourselves that we are improving the breed of "standard" cars, but these were mere "occasional verses" compared with the mighty epics of the Gordon-Bennett and Grand Prix battles.

Brooklands nobly did its best to put some life into British motor racing, just as Hendon is putting up such a splendid effort to make aeroplane racing a national sport—and, happily, both look like succeeding, though it is thanks to individual enterprise more than to encouragement by the trade in general. In the later days there came to this country a clever little Breton, Louis Coatalen by name, who, after making the Humber of his design one of the best cars of its time, has more recently turned out Sunbeam racing cars which can hold their own against anything of their size in the world. And the Anglo-French Clément-Talbots are their chief rivals in speed. Sometimes one leads, sometimes the other. Will anyone argue that racing and record-breaking is not the foundation on which the success of those firms is built? Is there any French, German, or Italian firm which has not built its reputation on racing?

When the German and Italian cars metaphorically wiped the French off the earth, the French abolished the Gordon-Bennett race on the plea of expense, but the Germans kept on and held their Taunus Circuit, and the Italians had the Brescia Circuit races, so the French revived the Grand Prix with limited sizes for the cars, and promptly the little Sizaires, and Delages and Peugeot's began to take a hold on the world's markets. And the little Calthorpes did a roaring trade after winning the team prize on the Dieppe Circuit. Again, their reputations were built on racing. Even the sedate and stately Rolls-Royce first attracted attention—only in this country at the time—by showing up well in the Isle of Man.

In America it is the same. The cars that sell at decent prices in the States are Packards, Pierce-Arrows, Oldsmobiles, and such; those which have put up good fights in Vanderbilt Cup and Dayton Beach races.

Sport as an Advertisement.

As it was with cars, so it is with aeroplanes. I shall be told that advertising by winning competitions, and otherwise, is mere waste of money when the only customer worth considering in any particular country is the Government of that country; but look at the facts. Would the Blériot have the hold it has in every military flying corps if M. Leblanc had not won the Circuit de l'Est, and if Lieut. Jean de Conneau had not won the Paris-Rome, and the European Circuit, and the Circuit of Britain, and if Captain Félix, M. Perreyon, and others had not captured the

height record again and again, and if the name of Blériot had not been attached to half the great flights of history? Were M. Fourny's duration record of 13 hours 7 mins., and M. Renaux' Puy de Dôme performance worth nothing to M. Maurice Farman? Have height records by M. Weymann and others, and innumerable cross-country flights, such as that of M. Séguin from Biarritz to Bremen, and M. Fischer's waterplane wins done no good to M. Henri Farman?

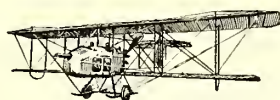
Did not the speed records of the late M. Edouard Nieuport and M. Weymann and Dr. Espanet bring the Nieuport to the front, and has not M. Bonnier's flight to Cairo with a passenger revived the Nieuport name just when it was wanted? Will anyone deny that the colossal long-distance flights of Herren Stöfler, Langer, and Ingold will impress on the World's Armies and Navies that German aeroplanes, with their inherent stability and their big, solid construction are now to be taken seriously? What is the reputation of the Gnome engine built upon except record performances, backed by systematic advertising? And are not those German flights already making the people who buy naval and military aeroplanes think seriously about the merits of fixed cylinder engines of motor-car type? Did not M. Gaubert's win in the long-distance race, and M. Moineau's battle with wind and sea in the Grand Prix at Monaco last year lay the real foundation of the popularity of the fixed-cylinder Salmson engine? Why, the whole success of everything in motoring and aviation is built up on the advertisement obtained by big wins in big sporting events. Even in our little way in this country it was the Sopwith height records of last summer and the winning of the Mortimer Singer "amphibian" prize which, in fact, formed the basis of the present highly successful Sopwith business.

What people forget is that, as General Henderson stated some time ago, the Army—and likewise the Navy—has to buy what the pilots will fly. And the pilots want to fly the machines which have shown themselves in open competition to be the best. Just as the young sportsman with money runs off to buy a car made by the latest successful racing firm, so the young and sportive officer-aviator of either Service in any country goes and panics round his senior officer till he persuades him to go to headquarters and beg for machines of a certain make and type, and if sufficient officer-aviators beg sufficiently assiduously for a certain machine that machine has to be bought, no matter what opposition there may be to it on the part of interested or prejudiced officials. This applies even better to the British Services than to those of many foreign nations, for one very good reason, the British officer cannot be bribed.

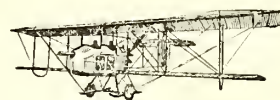
How some Business is done.

Some little time ago I was discussing this question with a friend who knows many foreign lands, and I expressed surprise that none of our big firms had entered for the big foreign competitions. His reply was just: "My dear chap! Selling anything to foreign Governments is simply a matter of who can afford the heaviest bribes." That, of course, is true up to a point. But only up to a point. Given equally good aeroplanes, or ships, or guns, the man or the firm who can afford to spend most on getting the orders gets them. In Russia, for example, one reckons on adding anything from 25 per cent. to 50 per cent. to one's price for bakhshesh, and, the Russian being a practical man, he takes it in hard cash. When a Grand Duke's mistress wants a new diamond necklace, the Grand Duke orders a battleship and draws his commission and the moujik pays.

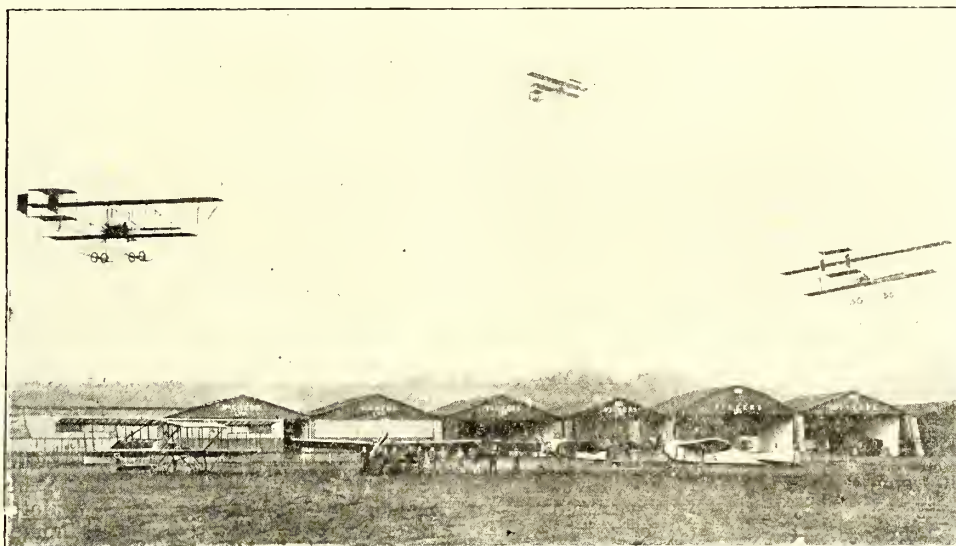
In other countries more tact is needed, and one has to spend more time buying political or family influence, and hard cash pays for it in the end. But bribery will not succeed in selling inferior stuff for



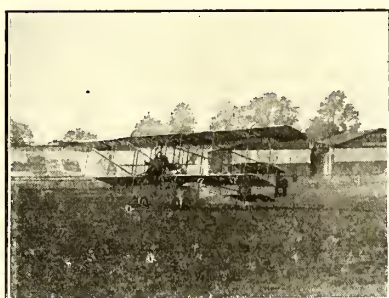
LEARN TO FLY



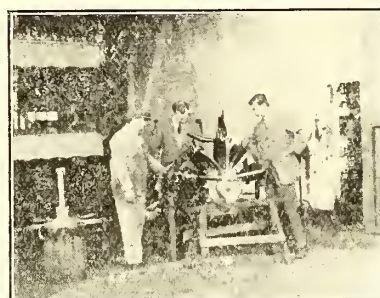
AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS Flying School, Brooklands



Instruction on the Biplane



Instructing Pupils in Aero Engine



Chief Pilot Barnwell

VICKERS, Limited,
AVIATION DEPARTMENT,
VICKERS HOUSE, BROADWAY,
WESTMINSTER, S.W.



Assistant Pilot Knight

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

long. The ultimate user, who is the Service aviator, or the naval officer, or the artilleryman, as the case may be, kicks when he finds he is not getting the matériel he wants. In the matter of aeroplanes he finds out the bad stuff quicker than in any other arm, and he is less inclined to put up with it because his neck depends more immediately on it than it does on bad rifles or bad guns or bad ammunition.

In this country one cannot bribe—one leaves out canteen scandals and remount scandals, for one is talking of the officer caste, and one knows that honorary commissions do not make silk purses out of sows' ears. One admits there are such things as family ties and old service friendships which may assist retired officers who engage in commerce to do business with the Services, but such business is very clean compared with, say, our own national party politics, and far cleaner than ordinary business in the City, or in the Provinces either. I know of several formerly important personalities in the motor trade who have retired, some rather suddenly, with quite comfortable fortunes made out of illegal commissions on goods bought for their firms, and who are now living on the interest, which generally exceeds the pension paid by a grateful nation to a retired admiral or general.

However, whether the influence used in selling war matériel is bribery, influence, friendship, or personal charm, the fact remains that one has to "deliver the goods" to the user, in this case the man who flies, and he is more likely to feel confident in the machine which has done well in open competition against the world's best, than in one unknown outside a limited circle. And that is why it is worth while to enter for competitions and advertise the fact.

Prizes to be Won.

It is even worth while to consider the prize-money on offer, for a good win will cover the expenses of winning. In this country, during 1914, we have the "Daily Mail's" Seaplane Circuit for British machines only, with a £5,000 prize, and there may be yet another British Michelin Cup plus £800, as the one offered last year was not won. That is all we have confined to British machines, and it is rather a good thing, for we ought by now to be fit to put our machines up against the world.

Then, of course, there is the "Daily Mail's" £10,000 for the Trans-Atlantic flight, which ought to be won this year, but may not be, because it involves much time as well as money, and is more the thing for a sporting millionaire or a big advertising firm to take on, than an ordinary firm of aeroplane makers.

What our makers should go for, though, are the

comparatively "soft things" on offer on the Continent. If Mr. Sopwith thinks it worth while to take a seaplane to Monaco for the Schneider Cup and its £1,000 prize, what about the others? There is £3,000 or so to be won in the Monaco "Rallye." There is £4,000 on offer for the Italian Trans-Mediterranean trip (the course to be patrolled by the Italian Navy). There is £6,000 for the Scheldt-Rhine-Meuse waterplane trip, absolutely next door to us, in June next. There is £2,500 in August for the Germany-Norway-Denmark flight, which is nearer than Monte Carlo. There is £3,000 for the Prince Henry Tour in Germany, and forty entries already. There is £1,600 for a proposed Paris-Cairo race. And there are big prizes for German waterplane meetings on Lake Constance and at Warnemünde on the Baltic.

Then, besides the Gordon-Bennett race, there are, presumably, sundry Pommery and Michelin Prizes in France, still undeclared, and there is the £16,000 for "Security in Aeroplanes," about which there is much squabbling as to the conditions of competition. Starting in this country there is the Hendon-Paris-Hendon race, for, probably, £1,000 or so, and there is the Aerial Derby.

If any firm in this country cared to build a couple of machines as good as our present best for water and land, and would spend a few thousand pounds on sending one of our best pilots, with a couple of first-class mechanics, to compete in all these events, and the man and machine performed up to our present best form, that firm would rope in the majority of those prizes.

Of course, I shall be told that all our manufacturers are now so busy on orders for the Navy and Army that there are neither men, time, nor money to spare for sporting machines. That is a very happy, comfortable state of affairs. It was just such a happy, comfortable state of affairs which kept the cycle trade during the boom of 1896-97, and the motor trade during the past few years, so busy on home orders that they neglected foreign markets, spurned foreign orders, and found, at the end of their little booms when the home market was overstocked, that the German, the Frenchman, and the Yankee had collared the trade of the rest of the world. The world is bigger than Great Britain, so the wise manufacturer will devote just one corner of his factory and one part of his attention to starting a raid on foreign business. Now is our chance to get a footing abroad. Have we enough business acumen to see that the winning of sporting competitions pays simply as an advertisement to the world's markets?—C. G. G.

An Aid to Progress.

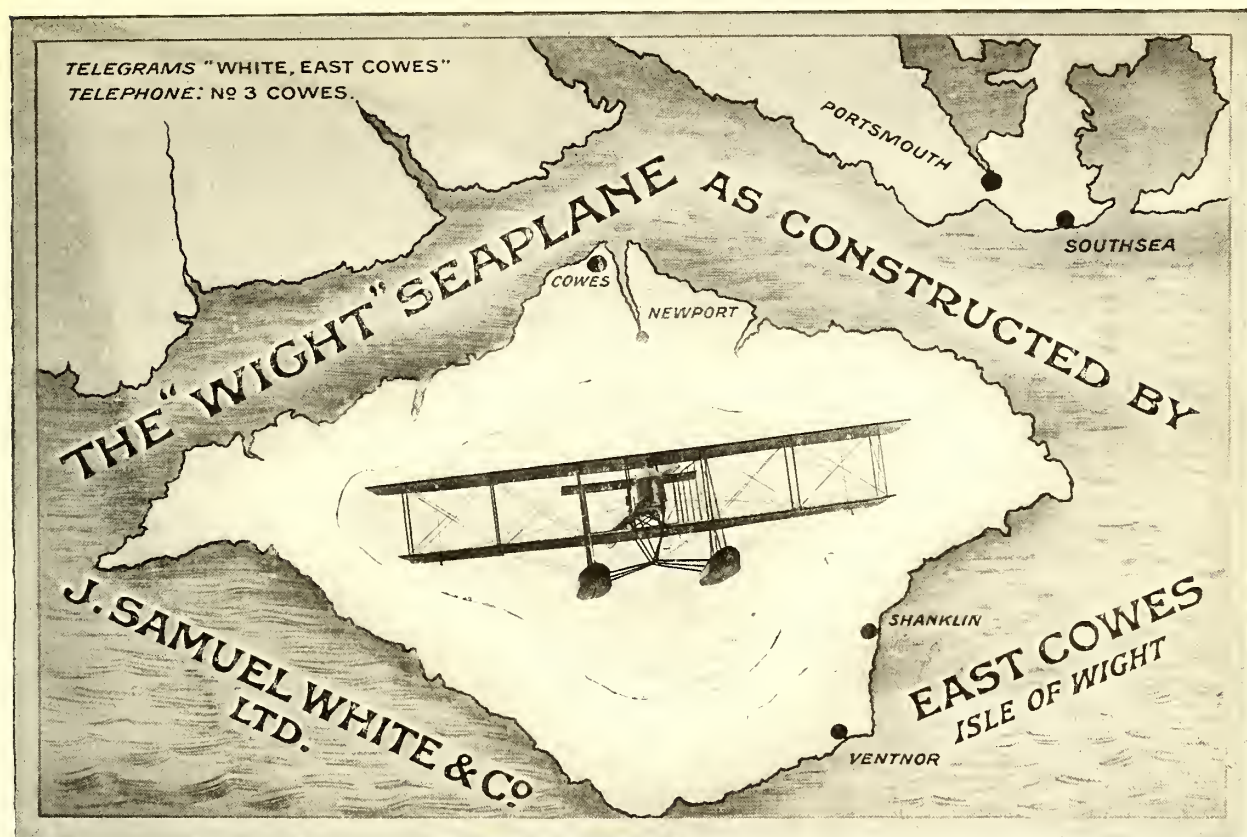
It has been suggested to the writer by one who is as keenly concerned for the efficiency of the Royal Flying Corps as for the establishment of a healthy and progressive aeroplane industry, that much assistance might be given to all concerned by adopting a system by which aeroplane manufacturers producing new ideas would profit thereby to a greater extent than at present, when a machine may be obviously better than anything of its type yet produce no profits.

The suggestion is that in the event of an aeroplane constructor, whether a large firm or a private individual, producing an aeroplane which is distinctly an advance on those at present in use in the Services, one or two of these machines should be bought for experimental flying by officers of the Royal Flying Corps, and that the price paid for them should be in excess of the price paid for aeroplanes built in series, so that the producer should receive some compensation for money spent in experiments as well as allowing a profit on the single machine. To this one might add that if this machine under test proved sufficiently valuable to be worth producing in quantities, and if the original producer cannot produce in the quantities desired, it might be simple to arrange that he should be paid an honorarium on each machine built by other

constructors to the same designs, much as a royalty would be paid on a patented article. Aeroplane patents seem worth nothing, so it is no use applying the idea to patented details or to patented systems. It would be better to let the Military Inspection Department decide what was really a new idea and what was not.

Enterprising constructors could be treated generously in this matter, and even if it were found necessary to make certain minor alterations in the design in order to bring the machine up to Military requirements, it should still be recognised as the type originated by that designer, and he should be treated accordingly. As a case in point, the "F.E." type biplane is so like a Henry Farman in its general arrangement that the fact might well be recognised financially; though in this particular case it might scarcely seem justifiable, because the machine has warping wings and a stationary engine.

The institution of some such system as this would undoubtedly encourage the production of new and improved types, and would not in the least affect firms who were content simply to build machines to official designs, nor would it cost the Army any more, for the more rapid the progress made in design the cheaper it would prove in the end.



Tuition at the Beatty School of Flying

My pupils, by training with me in the air, holding the dual control, learn to fly correctly, to bank properly on each turn, and to perform a vol-plane to the ground.

When their training is completed, they have not merely taken their certificates, they are trained pilots.

Tuition on { **HANDLEY-PAGE MONOPLANE** } **£75**
 { **WRIGHT BIPLANES** . . . }

Beatty School of Flying,
 London Aerodrome,
 Hendon, N.W.

SPECIAL TERMS TO
 NAVAL & MILITARY OFFICERS.

The State of French Military Aviation.—(Concluded)

BY W. E. de B. WHITTAKER.

"Questions are never indiscreet, answers sometimes are!" Many a Government has been wrecked because Mr. Oscar Wilde did not write his epigram at an earlier date. Many a Minister of State has found to his cost that an epigram may be true as well as clever. In Great Britain we have much knowledge as to indiscretion in Ministerial replies on aeronautical questions, even though the stability of English Governments gives Ministers adequate time in which to acquire a moderate knowledge of the subject which they are supposed to control.

In France matters are different. There the only consistency in the plan of government is the frequency of changes of Ministry. Premier after Premier takes up the reins of office, holding them hardly long enough to pay (out of the official salaries) for the extra dress-suit required by the strength of the official sun. Each new Minister has no time to learn his own work or that of his subordinates, thus it is found that Ministers habitually reply to a vigorous attack on the details of a subject by an apparently complete surrender. Their opponents are then entirely at a loss. They cannot impugn the honour of a Minister before he has had time to carry out the reforms, though they know that nothing will ever be done. Long before there is an opportunity for impeachment the Minister next but one afterwards is in power, and they are thwarted of their prey.

It is unfortunate for France that such a trivial matter as national finance should bring about a change of Ministry just as reforms were needed in the aeronautical services. The former Minister of War might be abused with point and vigour for his remissness in the execution of duty, but the new politician in power may plead that he has not had time, and M. Noulens is not one who will lose the opportunity.

His reply to M. Reymond's criticisms was made in the Senate on January 30th before a crowded audience.

He admitted at once that the essence of M. Reymond's attack was true and regrettable. Things are wrong, and it is useless to disguise the facts from the country, on the principle that if they know already it will not be a serious shock. And he proceeded to outline reforms which are, officially, to be made.

Even in France continued criticism put with bitterness but based on an incontrovertible basis of fact has had its effect at last. From the beginning, military opinion has been against sapper domination in

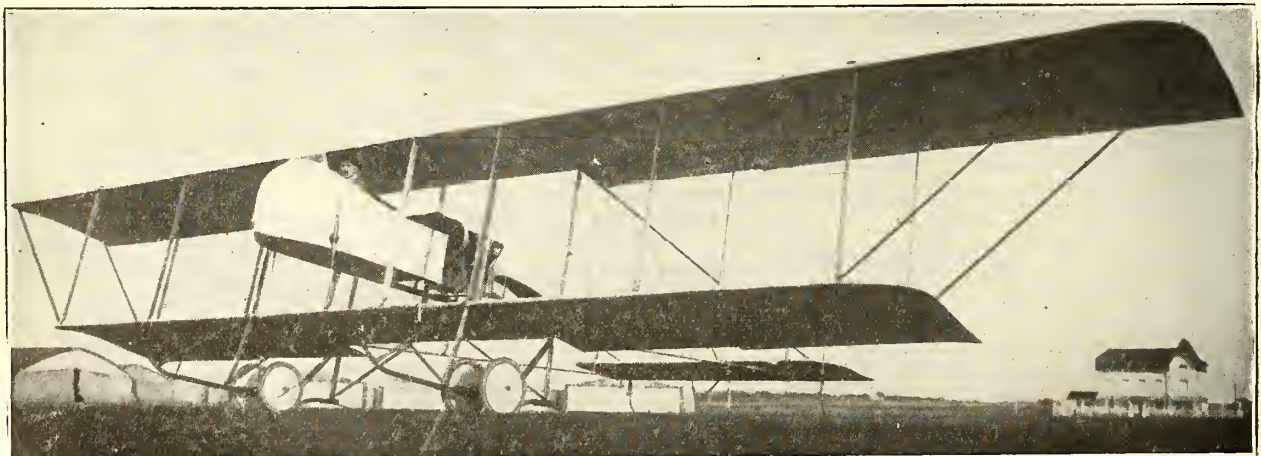
the new arm, and, as aerostation for some reason is peculiarly a sapper subject, it has been regarded as essential that aviation shall stand by itself under separate and competent control. This has at last been promised by M. Noulens. Also, aeronautics will be entirely separated from any military control save such as is exercised by the Minister of State for War. This, of course, only applies to organisation and internal administration. There are some, both at home and abroad, who would like to see the flying services independent of both the army and navy, forgetting that, after all, the military aeronautical services are fighting forces and not a branch of the civil service.

Chalais-Meudon, as much a bone of contention as is the R.A.F. in this country, is to be reorganised. This establishment is no longer to combine the duties of an experimental laboratory with that of a selecting and receiving depot for aeroplanes. The exact form of its reorganisation is not yet public and it is impossible to guess, but in it may perhaps be found a good example for our own use.

Following British practice, an Inspection Department is in course of formation which will supervise the management and efficiency of the different centres throughout the country. At the same time, a technical office will come into existence similar, says M. Noulens, to that which gives such excellent advice to the French artillery.

Another of M. Reymond's criticisms was answered by a surrender. It is now intended that there shall be a number of officers permanently attached to aviation who will be promoted within the corps in the manner common in the artillery (France). At the same time, a number of officers will be admitted from other arms who will serve for a fixed period, grading for promotion with their original arms and being seconded in the usual way.

As to mechanics, he realises the necessity, above all things, of a good supply. Accident after accident has happened in the French army owing to the respective pilot's lack of practical knowledge of his machine and its construction, or, at least, so says M. Noulens. He argues that a thorough knowledge would avert all accidents. It would, but surely that is no argument. Aviation officers are trained that they may fly on service and use their knowledge of military science that they may act as the eyes of the army. It is the duty of the mechanics and of the officer set aside (or,



The latest type Maurice Farman biplane, with raised nacelle, and monoplane tail, and minus a front elevator.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS

for the building of

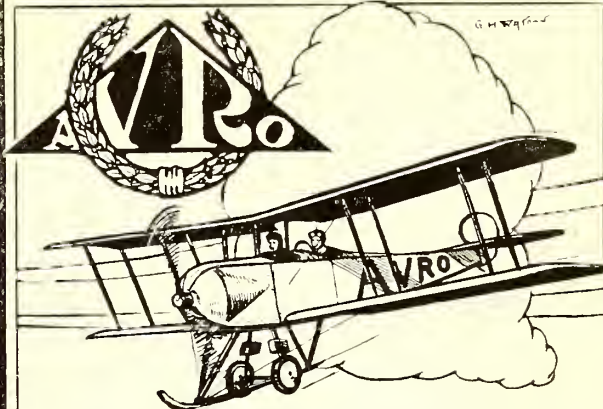
HENRY & MAURICE FARMAN

Aeroplanes AND Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.



ONE of THE FINEST AEROPLANES
ever designed, if not indeed

THE FINEST OF ALL
vide DAILY TELEGRAPH

AVRO

NOTHING BETTER

A. V. ROE & CO. LTD.

Contractors to the Admiralty, War
Office and Foreign Governments,

Clifton St., Miles Platting, Manchester.

Telegrams—Triplane.

Telephone—337 Failsworth.

BRITISH BUILT

CAUDRON AEROPLANES MONOPLANES BIPLANES HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
is thoroughly equipped and
Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

WHITE and THOMPSON Ltd.

SOLE CONCESSIONAIRES

FOR THE

CURTISS FLYING BOATS and ENGINES

IN THE UNITED KINGDOM
AND THE
BRITISH COLONIES

MIDDLETON, BOGNOR, SUSSEX

Telephone—
48 Bognor

Telegrams—
"Soaring," Bognor

rather, who should be set aside) for the purpose, to see that each machine is in fit condition. No flying officer has time, or should have time, to acquire more than a rudimentary knowledge of the principles of construction. One might as well expect a cavalry officer to be an expert on anthrax or any other disease that may be popular with horses at any season.

The French army is not so devoid of mechanics as the recent agitation would lead us to believe. In 1912, 420 men passed the necessary examination for entry as mechanics, and in the following year 520 further mechanics were embodied in the aviation service.

One of the chief criticisms levelled at the flying service by M. Reymond was that, despite enormous expense, France possessed a very inadequate number of pilots on the active list. It appears that there are in fact 330 pilots in all and 130 at the schools learning to fly. Of the 330 there are 180 officers. The number is made up as follows. Those who have passed their six-monthly tests in the latter half of 1913 and have returned to their escadrilles, laboratories, or offices, are 182 in number, 100 have not carried out these tests because they took their brevet militaire in the latter half of 1913, and 48 privates who are not attached to escadrilles.

This number can hardly be regarded as satisfactory in the greatest flying nation in the world. Yet the Ministry does not apologise.

M. Noulens then referred to the supply of aeroplanes, a matter of quite as great anxiety as that of pilots. This question was also one of great importance in the criticism levelled at the Ministry both inside and outside the Senate. The scandal of the National Committee and the peculiar financial arrangements of the Ministry of War have done little to encourage any faith in the figures given officially on previous occasions.

The figures given on this occasion are as follows: During 1912 and 1913 aeroplanes to the number of 577 were purchased and delivered, and at the time of the speech 100 yet remained to be delivered. Thus the total delivered and ordered is 677, of which 175 were given by the National Committee, 21 of these latter being direct gifts.

A prize, or rather a series of prizes, are to be offered shortly by the Ministry of War for the best aeroplane of the "escadrille" type—that is suitable for all-round work. This, again, is in response to M. Reymond.

Here it is opportune to refer to the speech made by General Bernard, Director-General of Military Aeronautics, towards the end of the sitting. Referring to armoured aeroplanes, he said that the authorities hoped to experiment with one type in March, and in May enough orders will be given, all other things being satisfactory, for enough aeroplanes to supply three or four escadrilles.

The type of aeroplane the French designate destroyers (that is, machines both armed and armoured) is also under consideration, and a machine will conclude its trials in May, when several orders will be placed.

For some time past it has become obvious to most people that it is possible to standardise existing types of aeroplanes to a far greater degree than has been yet attempted, and it is intended by the French authorities that this shall be done at once. One type of monoplane and one type of biplane will receive more favour than the others—both types being specified by Government officials. The great advantages following standardisation are so many and so obvious that it is unnecessary to refer to them here. The transport question is sufficient alone to demonstrate the case.

M. Noulens contested M. Reymond's figures as to comparative strength of the dirigible fleets in France and in Germany. He admits the absolute inferiority of France in this matter, but points out that French ships, small and antique as they are, have still of recent days made flights of fifteen and seventeen hours' duration without accident or trouble. The lack of hydrogen factories he deplored appropriately, and announced that one was to be laid down at Saint-Cloud. A large supply of tubes are to be prepared for any emergency that might arise. The Minister promised vaguely to accelerate the work in connection with dirigibles.

The rest of the statement rambled on in a manner unusual in France, where brevity is truly the soul of wit.

The whole debate reminds one unpleasantly of last year in England, when deceit and subterfuge disgraced the credit of a Minister of War and lowered the honour of a Government. The criticisms and the offered reforms have a familiar ring to any who had knowledge of past happenings in this country, and the general atmosphere was quite as unreal.

The Trans-Atlantic Flight.

The daily papers seem to be taking a considerable amount of interest in the prospects of a trans-Atlantic flight on the strength of paragraphs from America concerning the 200-h.p. Curtiss Flying Boat, which has still to be built. It will be quite time enough to become excited about the prospective flights when one or more of the machines built for the purpose have succeeded in raising themselves from the water when loaded with sufficient fuel and other things necessary for the journey.

However, the crossing of the Atlantic by air is quite a possibility either in a single flight on a land machine, or in a series of flights on a seaplane. Both these methods have their supporters among really practical men, and, given decent weather, the journey should be made before the end of this year, always provided that the necessary money to build the machines and test them before starting can be found.

The writer knows at the present moment of at least three separate schemes which are being developed by competent people on this side of the Atlantic, but as those responsible for them are doers rather than talkers, the probability is that nothing further will be heard about them till the machines are actually ready for test, or have completed their tests. None of them are anxious to appear in print till they have done something.

All of them have quite a chance of success, but the financial side is the chief difficulty. If by any chance any reader of

THE AEROPLANE happens to know a genuine sportsman who is willing to gamble a matter of £5,000 on building and testing a machine for the job, he might communicate with this paper, but so far as the public are concerned, it is not proposed to give any further particulars.

Of course, as a business proposition a firm ought to build the machine first on the understanding that it will be bought if it passes its tests, but, unfortunately, the majority of our aeroplane firms are not in a position to take on the building of a trans-Atlantic machine on these terms, so that it would probably be necessary to put up the money first for the actual building of the machine and the purchase of an engine.

It will be remembered that two years ago an article was published in this paper in which the possibility of crossing the Atlantic in one flight was shown, even with the comparatively inefficient lifting surfaces and extravagant engines of that period. The improvement in both motors and machines to-day makes the performance comparatively simple given a little bit of luck, if the money is forthcoming. Herr Ingolds' flight on February 7th, when he must have covered something very like a thousand miles in his 16 hours and 20 minutes flight, represents crossing almost two-thirds of the Atlantic, so with a specially designed, highly efficient machine, such as could be built in this country, and probably nowhere else at the moment, the journey comes within practical politics.

STILL LEADING!**G. HAMEL****LOOPED THE LOOP
BEFORE H.M. THE KING**

USING AN

INTEGRAL PROPELLER

The World's only **FIRST-CLASS** Propeller.
Integral Propellers **DO NOT BURST** in mid air.

**ALL STANDARD SIZES IN STOCK AT
OUR LONDON WORKS.**

Full Particulars from . . .

**THE INTEGRAL PROPELLER CO., LTD.,
307, EUSTON ROAD, N.W.**

Works: 1b, ELTHORNE ROAD, UPPER HOLLOWAY, N.
Telegrams: "Aviprop (Eusroad), London." Telephone: North 913.

"Beautifully smooth running, thereby adding to
general comfort, in addition to saving engine
power."—AEROPLANE.

PALMER CORD TYRES

fitted to your car will give you
greater speed, greater comfort
and greater safety, with
reduced petrol consumption.

In the Palmer Cord Tyre Book you
will find proof of the above. May
we send you a copy?

Will you write for it to-day?

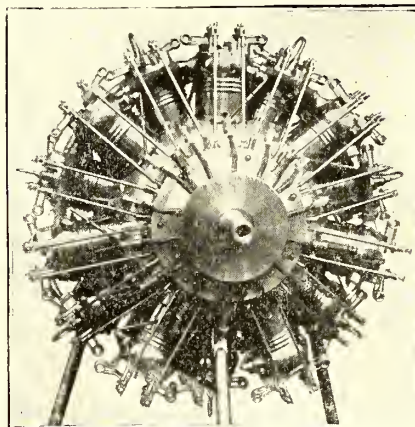
THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).

SALMSON AERO-ENGINES

SYSTEM CANTON - UNNE.



'Phone No.:
7 Stroud.

Tele.
Address:
Humpidge,
Cainscross.

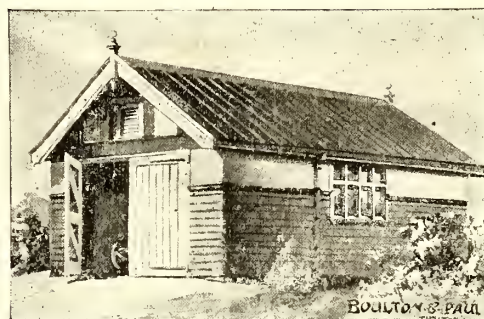
**The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.**

London Office:—87, Victoria Street, S.W.

'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manu-
facture of Portable Wood and Iron Buildings for
all purposes. Always made from best materials,
and constructed in perfect fitting sections for
easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

**PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR
HOUSES, CYCLE HOUSES.**

GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," February 13th:—

Royal Flying Corps, Military Wing.—Capt. J. H. W. Becke, Sherwood Foresters (Notts and Derby Regt.), from a Flight Commander to be a Squadron Commander, and to be granted the tempy. rank of Major whilst so employed (February 1st).

NAVAL.

The 200-h.p. Salmson-Maurice Farman at Calshot has now been reconstructed, and was taken out on Friday by the Farman pilot. After rising from a rough sea and 20 mins. wind-fighting she returned and landed. There was no other flying during the week, owing to the bad weather.

This Maurice Farman was the machine flown at Monaco by M. Gaubert, which was smashed here last autumn.

The Warsash coastguards' station is now being converted into barracks for the Naval Air Service.

One gathers that quite a little fleet of Sopwith seaplanes are to be tested on Southampton Water before long. These include the reconstructed "Mortimer-Singer" bat-boat (120-h.p. Austro-Daimler), a propeller-driven biplane (100-h.p. Anzani), and a propeller-driven biplane of large size, fitted with two 120-h.p. Austro-Daimlers, driving a single propeller by two chains.

One learns indirectly that rapid progress is being made with the three "Wight" seaplanes to be fitted with 200-h.p. Salmsons for the Navy, and their tests will be awaited with the keenest interest. Mr. Howard Wright, the manager of the Aviation Department is to be congratulated on the immediate success of the firm's beginnings in aviation.

At the Naval Flying School at Eastchurch on Monday and Tuesday the majority of the naval officers were out doing fine flying. On Wednesday and Thursday there was no flying as it was blowing a gale. On Friday a new B.E. made a short flight, and on Saturday the B.E. and Sopwith made short flights, though, owing to her Gnome missing, the Sopwith was soon down.

On Monday, Major Gordon, R.M.L.I., flew from North Queensferry to Dundee on the Borel seaplane, carrying Leading Seaman Shaw as passenger. The flight occupied 58 mins., the coast-line being followed all the way, and ended in a flight over the Tay. The machine was hauled up on the slip and covered up for the day, huge crowds waiting in the cold on the chance of seeing more flying. Next day, much to their disappointment, the wings were taken off and the Borel was taxied up to the dock, where she lies at anchor.

The work of transferring the hangars still goes on, and it is understood that Messrs. Cowieson, of Glasgow, have secured the contract for the erection of permanent sheds at the base—Carolina Port—indicating that an extensive scheme is meditated.

The Parseval, which has been under reconstruction, was out at Farnborough on February 16th for about forty-five minutes, in charge of Comm. Masterman, R.N., with whom were Lieut. Woodcock, R.N., and Engineer Lieut. Cave-Brown-Cave, R.N. Considerable alterations have been made both in the envelope and car. The former has been enlarged and has been treated with aluminium paint to guard against heat rays. The trials were satisfactory.

During last week Mr. Henry Farman paid a visit to this country, and on Wednesday did some test flying at the Yarmouth Naval Air Station on the new Henry Farman seaplane (80-h.p. Gnome) recently delivered there. M. Fischer, the Henry Farman seaplane pilot, also tested the machine. On Thursday Mr. Farman went to the Central Flying School and tested an 80-h.p. Henry Farman there.

Last week, Mr. Winston Churchill, First Lord of the Admiralty, inspected the Sopwith works at Kingston, and studied the various seaplanes and shore-going machines which are under construction there for the Navy.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending February 6th, 1914:—

Flying Depot, S. Farnborough.—Some reconnaissance and photography of troops were practised. Repair and experimental work continued.

No. 2. Squadron, Montrose.—The officer-pilots were employed in making long reconnaissance flights across country.

No. 3 Squadron, Netheravon.—Various experimental work was done and several long cross-country flights were made.

No. 4 Squadron, Netheravon.—A considerable amount of flying was carried out throughout the week. Another aeroplane was also flown from Farnborough for use with the squadron.

No. 5 Squadron, S. Farnborough.—The first four days of the week were devoted to flying, and the remaining days to overhaul and repair work.

No. 6 Squadron, S. Farnborough.—The week was devoted to organising the squadron. Some flying was done.

War Office, February 11th, 1914.

Squadron 2 did much flying on the fair days of the week, for although Monday was dull and hazy, well over 1,000 miles were flown. Capt. Dawes started early in the morning, carrying the "breveted" N.C.O.'s for their half-yearly tests. His Maurice Farman was out practically all day, and the passengers were Sergts. Mullin, Mead, and Kemper. All B.E.s ready for flight were out, including Nos. 226, 228, 229, 232, 233, 267, the officers flying them being Lieuts. Corballis, Dawes, Empson, Harvey, Lewis, Harvey-Kelly, Lawrence, Rodwell, and Martyn. Much ground was covered and Edinburgh and Aberdeen were visited.

Tuesday was brighter, and the same machines and officers were out, though less flying was done.

Wednesday came in with a roaring gale, which continued till about 3 o'clock, when it moderated, and Capt. Dawes went for half an hour in the Maurice Farman, carrying Sergt. Kemper. The same pilot was out early next morning, but the weather broke and there was practically no more done that day. Friday was gusty, with dull, heavy clouds, but Lieut. Dawes (B.E. 228) and Lieut. Corballis (B.E. 232) flew to St. Andrews. They had a stiff journey against a 50-mile wind, and Lieut. Corballis had to land for petrol on the sands while Lieut. Dawes turned and went back to Montrose. In landing, Lieut. Corballis was caught by a side gust which tilted his machine so that it bumped on one wing and smashed some ribs. It was to be repaired and flown back early this week.

The same day Lieuts. Empson (B.E. 233), Lieut. Harvey (B.E. 267), Lieut. Lewis (B.E. 229), and Lieut. Lawrence (B.E. 226) were engaged in district flights. A hurricane of rain and wind prevented any flying next day.

It is rumoured that the authorities are already discussing the possibility of abolishing the present system by which officers of the Royal Flying Corps only serve for four years, and that there is a possibility that before long the Flying Corps may be placed on the same basis as any other branch of the Army as regards continuous service. One ventures to suggest, for consideration by those most concerned, that the present four-years' service scheme has certain advantages. For instance, if any officer proves to be merely a good pilot, while still better pilots are awaiting appointment, or if a pilot's nerve shows signs of going though he may refuse to admit it and may possibly adopt artificial means of stimulating it, under the present system he retires automatically at the end of four years, without any reflection on his character, moral or physical, and there does not seem to be any reason why exceptionally good men should not be kept on after the four years has expired. On the other hand, if continuous service became the rule, it would be exceedingly hard to get rid of men who, though estimable in themselves, and absolutely guiltless of any definite offence, were still not exactly what is required in the Flying Corps. Would it not be possible to retain the present system and add to it a scheme of promotion and pension, provided the officer showed himself specially valuable and physically suitable to be retained for a second or third period of four years?

AUSTRALIA.

It is reported from Melbourne that Mr. Millen, the Minister of Defence for the Australian Commonwealth, went up as passenger with Mr. Hawker on a Sopwith biplane on February 11th, and that they reached an altitude of 3,500 ft.

FRANCE.

Writing in "L'Aero," M. d'Aubigny deplores the lack of money which is retarding the progress of French naval avia-

tion. For the first six months of 1914 the naval air service should receive altogether nine seaplanes, while no machines are yet definitely ordered for the second six months of this year. He gives the administrative staff credit for excellent intentions, and points out the necessity of a sufficient grant being made by the Government to carry these intentions out in view of the rapidly growing naval air stations of Germany, Italy, and Great Britain, compared with the lack of similar activity in France.

The cruiser "Foudre" has arrived at Marseilles with three officer aviators, two lieutenants and an ensign, on board. During the week Lieut. Reynard has been flying over the jetty in spite of the bad weather. Two officers of the section are weather bound at San Raphael. They will rejoin the "Foudre" on the first calm day.

The cruiser "Foudre" is to be fitted with a starting and landing platform—34 metres (105 ft.) by 8 metres (26 ft.)—erected forward about 6 ft. above the deck-level, and sloping slightly upward from the bows. One had hoped that the sport of "Montagnes Russes" was obsolete in all civilised navies.

Lieut. Janvier, of the French Navy, has flown from Toulon to San Raphael, escorted by a torpedo-boat.

The mechanics in the French flying corps appear to have excellent reasons for dissatisfaction. Last year they received special pay of 50 centimes (5d.) per day. After the manoeuvres last year this special 50 centimes pay was only granted to the mechanics who actually flew as passengers. Since then in certain centres, as, for example, at Saint-Cyr, the special pay has again been granted, and they have also drawn back pay, though in other centres the 50 cents for flying days only is still in force. Considering that the mechanic is responsible for his machine or machines, and besides trusts his life to his pilot, the reward does not seem entirely adequate. As a writer in "L'Aéro" points out, it is hardly enough to buy sweaters and overcoats for the winter.

Capt. Cass, of the engineers, commanding the aviation centre at Pau, has been placed on the staff of the Department of Military Aeronautic Matériel at Vincennes. Lieut. Binda, 12th battalion chasseurs-à-pied, has been appointed to the 2nd aviation group at Pau. Lieut. Bisch, administrative officer of the artillery park at Besançon, has been appointed to the Department of Military Aeronautic Matériel at Chalais-Meudon.

At Buc, on Sunday, February 8th, M. Maurice Farman and M. Renaux, demonstrating before various military pilots,

changed places in the air, M. Farman piloting at the start, while M. Renaux was in charge when the machine landed.

Colonel Boutieaux, accompanied by a number of members of the aviation committee, visited the Nancy aerodrome at Villers-lès-Nancy on February 12th and made a minute inspection of the sheds and machines. Many flights were made.

GERMANY.

The artillery school at Zattenborg is to carry out during the following year a series of experiments on the effect of gunfire on aircraft, over the Lake of Muritz. These experiments will be carried out with a new anti-aeroplane gun.

A second Schütte-Lanz rigid has been tested at Mannheim. She is of 22,000 cubic metres displacement, is fitted with three motors of 550 h.p., and has accommodation for 20 persons in her five nacelles.

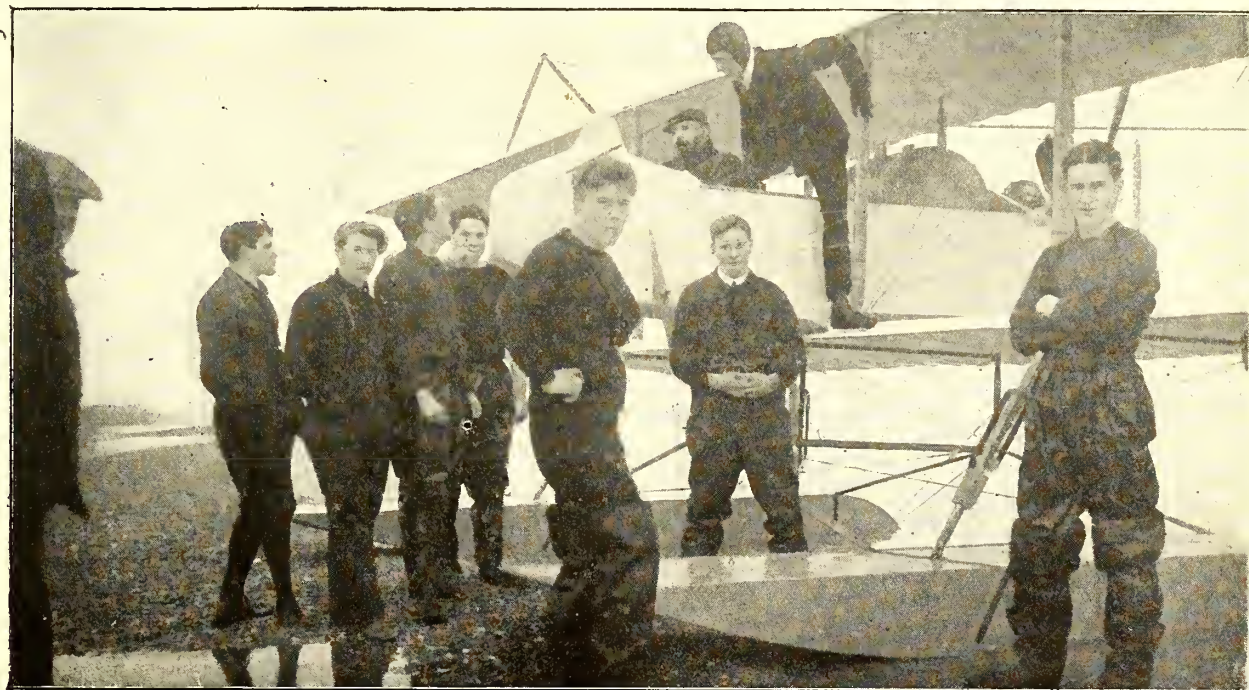
The German naval authorities state that satisfactory progress is being made with the preparations for the naval dirigible station at Cuxhaven, and that it will be ready for service about the beginning of April. The station personnel will number 800 all told, and will be under the authority of the coast-defence officers. This station is intended to be the chief naval air centre of Germany. It will be equipped with a turntable shed, 180 metres by 155 metres by 76 metres (590 ft. by 500 ft. by 84 ft.), and a hydrogen plant with a gasholder of 30,000 cubic metres capacity, devoted exclusively to naval dirigibles.

The twenty-third Zeppelin airship is approaching completion at Friedrichshafen. It is destined for the German army and, subject to passing its tests, will be numbered Z. VIII. It will be temporarily stationed at Treves, but will go to Dusseldorf as soon as the shed destined for it there is complete.

On February 9th Lieut. Furstenau, with Lieut. Hopfner as observer, left Doeberitz at 9.30 a.m. on a biplane and flew to Hamburg, which they reached at mid-day. They resumed their journey at 3 p.m. and flew to Neumunster, arriving there at 4 p.m.

Lieut. Thieme also flew on February 9th with Lieut. Michaelis from Posen to Breslau, where the latter was stationed, and returned to Posen on Tuesday. On the same day Lieut. Bienech with Lieut. Rademacher made the return journey.

The German military pilots are becoming very active again, and lengthy flights—Doeberitz to Hamburg or Breslau and back—are daily occurrences. An interesting flight was made a few days ago by a number of the officers stationed at Frieberg. They flew to the Black Forest and landed on the Titi See,



Mr. Henry Farman returning from a test flight at Yarmouth with Sub-Lieut. Kershaw, R.N.R., who is seen alighting from the machine.

2,500 feet up, which is frozen hard this year, afterwards ascending from the ice.—B.

The Zeppelin docks at Potsdam are rapidly approaching completion and the final arrangement of the machines and plant is being pushed forward in order to start work by March and ease the strain at Friedrichshafen, where the entire staff is terribly overworked. A piece of land measuring 4,500 square metres has been set apart for the factory and its requirements, but there will be no public passenger traffic carried on there, as was originally proposed. Military interests are predominant, and the above plan has fallen into abeyance; as it is, the railway station connected with the works is guarded by patrols. Strict measures will be taken to prevent the general public from approaching the works. Chief Engineer Duerr is at the head of the Zeppelin docks, to which he piloted Z.VII, the new military vessel, on its long and successful journey from Friedrichshafen to Potsdam, accompanied by the reception commission of the War Office. The trip lasted eight hours, and Director Duerr says it was the most delightful experience in his aeronautic career. Z.VII is pronounced the fastest aerial cruiser in existence, attaining a speed of 75 to 80 kms. (50 miles) per hour.

Rear-Admiral Kalan vom Hofe, of the German navy, writing in a South-German daily, says on the question of naval aeronautics: "The Test Institute for Aeronautics at Adlershof, near Johannisthal, founded in 1912 with the assistance of the Imperial Government, which granted a sum of 250,000 marks, is to serve as a link between science and practical construction, and is of the greatest importance for the development of flying-machines, as the most contradictory views still exist as to the construction of integral parts, such as carrying-planes, propellers, etc., and the factories, keen on business, have neither time nor money for scientific and technical tests.

"On June 1st of last year the marine airship and marine aviation detachments were formed under the control of the Imperial Naval Department, inasmuch as instruction, trials, and technical matters are concerned; for the rest, they belong to the marine station of the North sea. Organisation and strength have been fixed only for the next few years, as far as the development of aerial questions can be taken into account to-day. Besides the naval officers necessary, thirty were told off this year, about 1,452 deck officers, non-commissioned officers and men have been ordered to these detachments.

"Until 1915 ten naval airships, four revolving and one fixed shed, fifty naval flying-machines, and a number of aviation stations are to be called into being; a sum of 35,000,000 marks is estimated as expenditure until 1915. The housing of the detachments up to now is but provisional, as the homes proper are still in course of erection. Nevertheless the instruction of the men for the airships in construction went on promptly, especially at Johannisthal; the aviators practised at Putzig, Kiel, and Wilhelmshaven.

"The autumn manoeuvres were begun with decided assurance, as they were set apart for the winning of further experiences as to the use of airships and machines in the fleet on high sea and coastal defence. The catastrophes that befell us could not sweep away all we had learnt, destroy all our aerial fleet, but still the loss of so numerous and skilled men of all grades was a very heavy blow. Luckily, not a day was lost in making up for the disaster. The education of the crews destined for the airships 'L. III' and 'L. IV,' to be taken over in the spring, commenced immediately, the passenger-vessels 'Viktoria Luise' at Frankfurt, and 'Saehsen' at Dresden, being chartered for the purpose.

"The marine airship detachment, hitherto stationed at Dresden, left recently for Fuhlsbuettel to where the 'Saehsen' has gone likewise. Instead of being able to practise with an aerial fleet of four vessels, as intended, the Naval Department, unfortunately, is restricted to two and hampered in the development of the auxiliary arm so immensely important for scouting purposes. Of the two new airships, which are to represent the utmost stage of perfection, the one is being built by the Schütte-Lanz, the other by the Zeppelin firm.

"The naval aviators have been more fortunate, although they, too, have had losses. The development of the naval flying-machine out of the ordinary machine has made further progress, although the many difficulties ascent and descent on a rough sea naturally afford will have to be overcome with more certainty. The water-machine with short carrying-planes

and very powerful engines should be best under these circumstances."

ITALY.

One has become so prone to taking long "pannes-less" dirigible flights as matters of course that I am actually faced by the doubt as to whether P. 4's return flight from Turin to Rome is sufficiently notable to merit space in the columns of THE AEROPLANE! The vessel's commander, Lieut. Benigni, after cruising all day against the wind considered it wise to anchor out for the night at Massa rather than continue the journey at night on the diminished supply of spirit on board. The return being made via Genova and Leghorn, the Apennines were crossed where they are generally supposed to be at their worst. This part of the round trip cannot rightly be called the return yet, as the vessel is still at Rome, having so far passed over or stopped at five of the biggest cities, a well-planned trip for rousing interest in view of future parliamentary votes in the contiguous hereafter.

Sergt.-Major Petazzi again distinguished himself by taking the De Dion-M. Farman and a passenger up to 12,500 ft. in 1 hr. 37 mins. at Mirafiori, quite close to the Italian height record held by Capt. Piccio.

A large Curtiss flying-boat, built by Signor Bossi, was entered for its acceptance trials at Venice recently. All the best-known naval pilots testified to the consideration in which they hold these craft by assisting, and Vice-Admiral Garelli, a persistent passenger on waterplanes, himself took a flight in her. Wireless will form part of her equipment.

A new dirigible shed is to be provided in Tuscany, where it is badly wanted, owing to the nature of the hilly country. The absence of a military aeroplane station is a matter which strikes one as requiring the obvious remedy in that part of the land.—T. S. HARVEY.

RUSSIA.

M. Bayard de Mendonça, who recently went to Russia to deliver an Astra airship to the Russian Government, publishes a complete list of the Russian airships, which are as follows:—

One Clément-Bayard I (9,000 cubic metres), constructed at the Astra works in 1908.

One Zodiac (2,500 c.m.), delivered in 1910.

One Lebaudy (4,000 c.m.), delivered in 1910.

One Parseval (10,000 c.m.), delivered in 1913.

One Clément-Bayard (6,000 c.m.), delivered in 1913.

One Astra XIII (10,000 c.m.), delivered in 1913.

One Albatros (11,000 c.m.), constructed from the plans of the Russian army by the Société Russo-Baltique in 1913.

Two "Pigeon" type dirigibles constructed by the above firm.

The Albatros in its general lines recalls the French dirigible "Fleurus." The "Pigeons" are small vessels of 2,200 cubic metres with steel nacelles and Russian-built motors.

At present, like other countries, Russia is considering the acquisition of airships much larger than those at present in service. The Government is constructing in its own workshops a dirigible of 18,000 cubic metres, and has ordered in France an Astra-Torres and Clément-Bayard, each of 23,000 cubic metres, which are to be delivered this year. Russia is said to be still in a state of organising, but the work is being done methodically, and already remarkable results have been obtained.

There are five Russian air stations, three near Petersburg, one at Warsaw, and one at Lida. The arrangement of these centres is excellent, comfortable barracks being built for the troops, and each officer possesses a villa with a garden of its own. The sheds are each built to hold two airships, and are fitted at the top with a travelling bridge, permitting work to be done on the envelope of the balloons with the greatest ease. Each station has a Lelarge hydrogen plant for refilling the hydrogen-tubes, which when filled are stored in huge magazines built underground so as to keep the temperature constant in winter or summer.

The arrangements for refilling the balloons are such that a 10,000-c.m. envelope can be inflated in 7 hours, though in France similar work cannot be done in less than 10 hours, even with experienced crews. The instruction of pilots is carefully carried out, and officers make numerous night-flights. Each centre is fitted with searchlights which have a range of 4 kms. The need for these searchlights is felt in Russia, because the villages are very far apart, and apparently the Russians do not trouble about lighting up their railway stations.

BELGIUM.

On February 9th, Lieut.-Aviator Massaux flew from Boninne to Beauraing without alighting. On the return journey he was not so fortunate and was compelled to land in a small field, and running into an iron fence he smashed his machine. The pilot and his passenger escaped uninjured.

Corporal-Aviator Cronbez, of the Engineers, landed on the 11th at the residence of his parents at Saintegnies and returned next day to his station at Brasschaet.

The officers of the Belgian Army who are stationed at Namur in connection with the air service are:—10th Regiment of the line, Lieuts. Massonet and Pierrot and Sub-Lieuts. Gods and Petit; 13th Regiment, Lieut. Robert and Sub-Lieut. Louppe; 1st Lancers, Lieut. Moreau and Sub-Lieuts. Delfosse, Orban, Laffineur, Kervyn de Meerendré, Verhaegen and de Burlet; Fortress Artillery, Sub-Lieut. Daniel; Fortress Engineers, Lieut. Leveque, and Sub-Lieut. Coassin.

SWEDEN.

Captain Sundstedt is training at Buc with his new Henry Farman seaplane. Baron Cederström has bought two Henry Farman aeroplanes. As you see, it was no bad business at all for the Farman brothers to send Chevillard to Scandinavia, as their aeroplanes are now the most used by civilian as well as army and naval aviators.—Hl.

DENMARK.

Lieut. Hoeck, who met with an accident some time ago, as it will be remembered, has finished at the Franco-British Aviation Company at Vernon, and he and another Danish naval officer, Lieut. Laub, are now at the school of the Farman Frères to learn to fly their aeroplanes and seaplanes, as they will bring home with them one Henry and one Maurice Farman seaplane. The Town Council of Copenhagen has given £560 and that of Aarhus £120 to the three lands' seaplane race.—Hl.

SPAIN.

Captains Ortiz and Herrera flew from Tetouan in Morocco to Seville in Spain on Sunday, 15th, crossing the Straits of Gibraltar en route. They carried a message from the High Commissioner of Spain in Morocco to the King of Spain, who forwarded the message to the Minister of War and congratulated the aviators.

In the report published recently of the fatal accident to Lieut. Ramon at the Spanish Military Aerodrome at Quatro-Vientos near Madrid, it was alleged that this officer was flying a Bristol tractor biplane, and turned it over on landing. The statement was based on a paragraph in the "Times" newspaper, but the British and Colonial Aeroplane Co., Ltd., write that it is entirely incorrect. One naturally regrets the inaccuracy.

TURKEY.

The projected competition for Turkish military aviators between Constantinople and Jerusalem has produced an interesting article in "L'Aero" by M. Kelekian on the Turkish military aviators. The most experienced of these is Fessah Bey, who learned to fly a Blériot at Buc and still flies a monoplane of this make. He recently flew from Constantinople to Adrianople and back in the day, his flying time being four hours. Fessah Bey is a captain in the army, and commands the escadrille at San Stefano. He is credited with having done a considerable amount of flying during the recent war. Féthy Bey, who is considered one of the best Turkish fliers, was trained at the Bristol School on Salisbury Plain. It is said that he flew over Adrianople during the war, but this appears to be doubtful. However, he certainly flew at Tchataldja, and on one occasion glided down safely into the Turkish lines after his motor had stopped at a height of three thousand feet over the Bulgarian army. He also has flown from Constantinople to Adrianople and back, and some of the most important personages in Turkey have trusted themselves as passengers to his care. Salim Bey, who flies a Blériot, was trained at the R.E.P. School at Buc. He also flew during the war, and it is said that his machine afterwards showed that it had been hit by many bullets. Recently he flew from Constantinople to Kirk-Kilisse and back via Panderma, at which place he missed the coast and flew out into the Black Sea, only just finding his way back to land as his petrol became exhausted.

Osman Noury Bey flies a Deperdussin monoplane, and has also made the Constantinople-Adrianople trip. He is par-

ticularly fond of flying high, and is said to be a very good mechanic. Fazil Bey, who flies a Bristol, is the youngest of the Turkish aviators, and has done some good cross-country work. When Daucourt was starting for Cairo from Constantinople, Fazil was accompanying him into Asia Minor when his motor stopped over some very hilly country, and he came down on a hilltop, smashing his machine to pieces but escaping himself. Mehmed-Ali Bey, who is regarded as somewhat of a character, flies an ancient R.E.P. which invariably lets him down in the most awkward places, where with much trouble and excitement the pilot consistently rebuilds the old thing and somehow manages to get home. He causes considerable amusement to the dignified Turk by spending his spare time in making model aeroplanes. There are, besides the above, Refik Bey, who, owing to illness, has done little flying of late, and Osman Bey.

It appears that the intended Constantinople-Jerusalem race now merely takes the form of an official "raid" on the part of Osman Noury and Féthy Beys. The former will carry Sadik Bey, A.D.C. to the Minister of War, as passenger, and Kémal Bey, an officer of the General Staff, will accompany the latter. The flight is being undertaken simply with the idea of popularising aviation in Turkey.

The Constantinople-Jerusalem flight started from San Stefano on February 7th. Mahmoud Pasha, Minister of the Turkish Navy, made a preliminary test flight round the aerodrome as a passenger with Féthy Bey on his Blériot.

When last heard of Féthy Bey had reached Tarsus, the flight being begun in very foggy weather, with consequent missed routes. There is no news of Osman Moury Bey, who left Constantinople at the same time.

The feminist journal "Kadınlar Dunyasi," which is the chief organ of the women's rights movement in Turkey, has opened a subscription to present an aeroplane to the army, and in five weeks the sum of 18,000 francs has been collected.

U. S. A.

The report of the U.S. Navy Board of Aeronautics has just been published. The Board recommends that Congress appropriate as early as possible 1,297,700 dols. (£259,500) to cover:—

- (a) Fifty units of aeroplane, outfit, spare engines and parts (fleet service), 500,000 dols.
- (b) One 10,000 cubic metre dirigible, outfit and parts (fleet service), 173,000 dols.
- (c) One fixed and one portable hydrogen plants (Pensacola plant), 17,000 dols.
- (d) One double floating dirigible shed (Pensacola plant), 90,000 dols.
- (e) One mooring mast (Pensacola plant), 1,200 dols.
- (f) One combination captive and free balloon (Pensacola plant), 800 dols.
- (g) Fixed and portable aeroplane sheds (Pensacola plant), 18,000 dols.
- (h) Three motor-boats, three tractors, two trailers (Pensacola plant), 39,400 dols.
- (i) Gasolene storage (Pensacola plant), 4,000 dols.
- (j) Maintenance, 100,000 dols.
- (k) Two dirigibles, Vedette type (Pensacola plant), 85,000 dols.
- (l) Six units of aeroplanes, outfits, spare parts, etc.; six tents; four knockdown trucks (advance base outfit), 92,300 dols.
- (m) One 2,200 cu. m. dirigible and accessories (advance base), 177,000 dols.

Or a total of 1,297,700 dols.

The Board recommends:—

- (i) The establishment of one great aviation centre at Pensacola (Florida) navy yard.
- (ii) The provision of aeroplanes for all ships of the fleet and auxiliaries, and that all battleships be so equipped as soon as possible.
- (iii) Officers to be instructed on machines of same type—on both land and water machines—all of which are to be fitted with standard control, and, if possible, a single standard type of machine to be developed.

The flying school is to be at Pensacola and divided into (a) sea section, for advanced practice and experiment; this section to be equipped with a reserve ship for experimental work—

catapult launchers, etc.—and for use as store ship and in conjunction with dirigible work; (b) land section, for ordinary instruction and practice.

One or more pilots to be detached each year for experimental work at the Aircraft Factory or the National Laboratory, or for study abroad.

Pilots of the sea section to be available for transfer to a ship and to take charge of aeroplanes attached to that ship.

Recommendations as to personnel are made, also as to the establishment of an air department under the charge of a Director of Naval Aviation. This department is not to be a separate department (whatever this may mean).

Personnel to consist of one Director, one Assistant-Director, five assistants—representing Bureau of Navigation, Construction and Repair, Steam Engineering, Ordnance, Marine Corps. One of these assistants to be a pilot.

Foreign Notes. France.

On Friday last, M. Raoul de Reals was killed at Villacoublay. He had been putting Bréguets through their reception tests, when, for some reason, one of them dived vertically to the ground.

On February 4th, the French pilot, Emile Brodin, succumbed to injuries received during the previous day at L'Isle Adam on the Seine, on which his machine fell from a height of 30 metres.

The height reached by M. Legagneux in his record flight at Fréjus on January 27th last has been officially passed as 6,120 metres (20,086 feet, or about $3\frac{1}{4}$ miles), exceeding that reached by the late M. Perreyon by 240 metres.

Official French statistics go to show that the export of aeronautical material in 1913 was as follows:—3 dirigibles, 6 balloons, 272 aeroplanes, and 13 seaplanes.

The two Blériot pilots, Bidot and Deroeye, continue to make many parachute releases at Buc (with dummy parachutist). Bidot has also been testing a new machine, which is said to climb 1,000 metres (3,300 feet) with full load in five minutes.

Germany.

On February 12th, Herr Langer made an attempt to wrest the duration record from Herr Ingold. Starting from Johannisthal, he flew to Königsberg and part of the way back, but after 16 hours' flying was compelled to land for lack of petrol, thus failing to equal Herr Ingold's performance by 20 minutes. He used the same L.V.G.-Pfeil biplane, 100 Mercedes engine, as he employed in his 15 h. 7 min. flight a week before.

On February 8th, after Ingold's flight, Schueler, the Ago pilot, left Johannisthal at 7.30 a.m. for Hamburg, throwing down a message at the Fuhlsbüttel station and continuing to Kiel, where he manoeuvred above the harbour for an hour, eventually landing at 5.30 p.m., after a non-stop flight of 9 hrs. 45 mins. His machine was an Ago biplane (100-h.p. Argus motor). Schueler flew back to Johannisthal from Kiel, where he stayed for a few days, landing mid-way at Schwerin.

On February 11th, Thelen deprived Garaix and the Schmitt biplane of the passenger altitude record, reaching 2,850 metres against the Frenchman's 2,750 metres. Thelen, who flew an Albatros-Arrow biplane, carried four passengers.

Switzerland.

On Wednesday, February 11th, M. Parmelin successfully accomplished the flight across Mont Blanc, in the course of a flight from Geneva to Aosta (Italy), 110 kms. (70 miles about). He intended to continue to Turin but was obliged to land owing to fog. His machine was a Deperdussin monoplane (80 le Rhone).

Argentina.

According to the French Press, the Morane-Saulnier and the le Rhone firms have been advised that Señor George Newbery, piloting a Morane-Saulnier (80 le Rhone) at Buenos Ayres, has beaten the world's altitude record by rising to 6,250 or 6,275 metres (22,385 or 22,470 ft.), the two communications differing by 25 metres. Señor Newbery is President of the Argentine Aero Club.

A New British Height Record.

On Tuesday, February 10th, Mr. F. P. Raynham, with Mr. R. McGeagh Hurst as passenger, ascended to a height of 14,300 feet on an Avro biplane (80-h.p. Gnome), carrying with

him three official barographs. This is the absolute British Height Record, as well as the passenger record.

The Royal Aero Club.

The annual general meeting of the members of the Royal Aero Club of the United Kingdom will be held on Tuesday, March 24th, 1914, at 4 o'clock, at 166, Piccadilly, London, W. Notices of motion for the annual general meeting must be received by the Secretary not less than twenty-one days before the meeting, and must be signed by at least five members. Wednesday, March 4th, 1914, is the last day for the receipt of notices of motion.

In accordance with the rules, the Committee shall consist of eighteen members. Members are elected to serve for two years, half the Committee retiring annually. Retiring members are eligible for re-election. The retiring members of the committee are:—Col. J. E. Capper, C.B., R.E., G. B. Cockburn, Major J. D. B. Fulton, C.B., R.F.A., J. T. C. Moore-Brabazon, Com. C. R. Samson, R.N., A. Mortimer Singer, T. O. M. Sopwith, The Marquis of Tullibardine, M.V.O., D.S.O., M.P., Roger W. Wallace, K.C. Col. J. E. Capper, C.B., R.E., does not offer himself for re-election.

Any two members of the club can nominate a member to serve on the Committee, having previously obtained such member's consent. The name of such member so nominated, with the names of his proposer and seconder, must be sent to the Secretary in writing not less than fourteen days before the annual general meeting. Wednesday, March 11th, 1914, is the last day for the receipt of nominations.

The Aeronautical Society.

Official Notices.—1. Meeting. The eighth meeting of the present session will be held on Wednesday, March 4th, at 8.30 p.m., when Mr. Mervyn O'Gorman, C.B., M.I.M.E., A.F.Ae.S., will preside. Mr. Archibald R. Low, M.A., A.F.Ae.S., will read a paper on "The Rational Design of Aeroplanes," followed by a discussion. 2. Nominations for the election of Council.—The last day for the acceptance of nominations for the Council will be Wednesday, February 25th next. Candidates for election must be nominated by two voters and no more (see Rules 6-13). In the event of nominations being received ballot papers will be posted to voters on March 7th, and must be returned to the Secretary by 12 noon on March 18th, 1914. Under Rule 7 the retiring members of Council are:—Col. J. E. Capper, C.B., R.E., J. W. Dunne, J. H. Ledebor, F. K. McClean, Major-General R. M. Ruck, C.B., Lieut.-Col. F. H. Sykes. Under Rule 14:—Dr. T. E. Stanton, Dr. R. Mullineaux Walmsley. 3. Annual General Meeting:—The annual general meeting of the Society will be held on Wednesday, March 18th, at 8 p.m., at the Royal United Service Institution, Whitehall, S.W.—B. G. COOPER (Sec.).

The Slack Fund.

The following is a complete list of subscriptions received to date in connection with the above fund:—International Correspondence Schools, £21; Anonymous, £12 12s.; Grahame-White Aviation Co., £10; Aircraft Co., per Mr. Holt Thomas, £5 5s.; Arthur Forman, Esq., £5 5s.; General Aviation Contractors, £5 5s.; G. C. Gold, £5 5s.; J. C. Withers, £5; O. F. Odell, £2 2s.; John Cates, £2 2s.; L. A. Strange, £1 1s.; THE AEROPLANE, £1 1s.; J. Teulade, £1 1s.; Charles Lane, £1 1s.; "Flight," £1 1s.; B. C. Hucks, £1 1s.; A. V. Roe, £1 1s.; J. H. Ledebor, £1 1s.; Mr. Halahan, £1; Phillipe Marty, £1; Frank Sale, £1 1s.; Ben Suttley, £1 1s.; H. K. Judd, £1 1s.; M. Verrier, £1; J. L. Hall, 11s.; T. O'B. H., Farnborough, 10s. 6d.; C. J. Fairfax Scott, 10s. 6d.; Mr. Ellis, 10s. 6d.; J. Nardini, 10s.; W. W. Bowker, 10s.; W. E. de B. Whittaker, 10s.; P. R. Ritchie, 5s.; J. H. Bliss, 5s.; Anonymous, 5s.; E. B. Seymour Norton, 5s.; W. W. Odell, 5s.; R. P. Baker, 5s.; Mrs. Parke, 5s.; K. Henn, 4s.; D. Y. Ferguson, 2s. 6d.; A. Bourne, 2s. 6d.; J. T. Holding, 2s. 6d.—Total, £94 6s. 6d.

Further subscriptions may be sent to Mr. F. N. Birkett, hon. sec., Slack Fund Committee, 97, Percy Road, Shepherd's Bush, W.

Thanks!

The editor desires to thank the numerous readers of this paper who have expressed their appreciation of the little parable published last week. It is surprising to find that so many of those primarily concerned with aviation should be interested in such an old-fashioned industry as horse-breeding.

ACCLES & POLLOCK, LIMITED. ALL SIZES, SECTIONS & GAUGES OF **STEEL TUBE** FOR AEROPLANES. ONE QUALITY—THE BEST.

OLD BURY, BIRMINGHAM. Send for 25" X 20 Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.

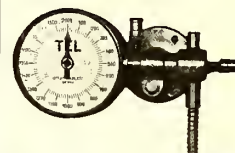
TEL**The Best Revolution Speed Indicator**

Being mechanically operated possesses the following advantages—

Over 2000 TEL instruments supplied for use by the French, Russian, Italian and Spanish Naval and Military Depts. and the British Admiralty.

THE HASLER CO., 26 Victoria St. Westminster, London, S.W.
Phone Vict. 431Uniform Dial Graduation
Not affected by changes in temperature or vibration.

Indicates with same accuracy high and low speeds.

**THE GNÔME ENGINE COMPANY**

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

*For Great Britain and the Oversea Dominions :***THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.****CELLON**

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

IMMEDIATE DELIVERY OF THE BEST DOPE.

Reg. Offices:—

17, OLD BROAD STREET, LONDON, E.C.

Telegrams: "AJAWB. LONDON." Telephone: 5359 London Wall.

Factory:—

STIRLING CHEMICAL WORKS, CANNING ROAD, STRATFORD, E.

Telegrams: "Bucheron, London."

Telephone: 3811 Hop.

TIMBER

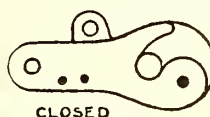
for any type of

AIR or WATER CRAFT

Send your enquiries to

JOSEPH OWEN & SONS, LTD.,**199a, Borough High Street, London, S.E.****RELEASE GEARS for AEROPLANES**

REG. PATENT N° 17,090-11.



CLOSED



OPEN

SPECIAL STEEL STRAINERS, EYEBOLTS BOLTS and NUTS, ETC. ALSO ENGINE HOUSINGS, and STEEL TUBE WORK.

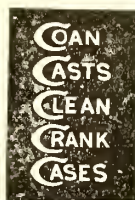
Prices and Catalogue Free.

RUBERY, OWEN & CO. DARLSTON, SOUTH STAFFS
Manufacturers of Aeroplane Accessories.**Aluminium Castings**

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality

ON ADMIRALTY AND WAR OFFICE LISTS

**R. W. COAN****219, GOSWELL ROAD, LONDON, E.C.**

Telegrams—

Krankases, Isling, London.

Telephones—

3846 City 4879 Central.

A Simple Explanation of Inherent Stability.

By W. H. SAYERS.

The question of inherent stability is one that has attracted much interest and caused much strife amongst all classes of those interested in aviation. It has been the cause of much activity on the part of transcendental mathematicians—to such effect that not only have they in many cases bewildered their readers but they are sometimes under suspicion of having successfully bewildered themselves. It is unfortunately also the case that many writers and students dealing with this question in simpler language than that of the mathematician have been led astray by the too apparently obvious.

The mathematical treatment of such a subject is of great value, but those capable of understanding the complex mathematics of others should be able to produce the required results themselves, provided they have a clear vision of the actual principles involved. Hence a simple straightforward explanation of the actual known principles by which inherent stability may be attained should be of value to both the mathematical and the non-mathematical reader.

It may here be as well to warn the reader that in all probability the inventors of various inherent stability machines coming into the classes which will be dealt with later, will deny that they owe their stability to the simple causes herein explained, preferring to ascribe their results to much more complicated phenomena. It is frankly admitted that the action of certain stabilising devices is much complicated by many curious and incompletely understood causes, but the simple explanations herein given account in the main for the general effects produced—both qualitatively and quantitatively—which corresponds with the eating of the pudding.



Before proceeding further it may be as well to arrive at a clear understanding of what stability really is. We may take as an example the well-known little toy, shown in Fig. 1, consisting of a hemisphere of lead surmounted by a paper cone. Placed in any position it returns, immediately it is free, to the upright. As a matter of fact, it goes past the vertical position and oscillates slightly before coming to rest. This quality is stability and the stability is complete. It is to be noticed that this toy, in spite of its stability, requires only a very small disturbing force to move it far from its original position, but it returns very quickly.

Consider Fig. 2. This shows a balance arm having on it two equal sliding weights. These weights, being at A equidistant from the centre, and having their centre of gravity below the point of support of the balance, the system is in stable equilibrium and betrays the same general characteristics as Fig. 1.

But move the weights out to the positions B. The system still remains stable, but it will be found that a much larger force must be applied to the arm to produce a similar disturbance—obviously since to move the arm through the same angle the weights have to be moved through a much greater distance. Not only this. After the removal of the disturbing force the return to normal position will be much more sluggish, and for small disturbances the system will be steadier, though not more stable. This is a point of considerable importance. An aeroplane having its heavy parts distributed over a considerable space will, in the same way, be

slower to answer to air disturbances, and will require more to stop her movements when once started, but, owing partly to the relative slowness of her movements, and partly to that slowness giving the pilot opportunity to use his controls, will appear steadier than a machine, otherwise similar, having all its large weights closely concentrated, and will generally be credited—usually unfairly—with greater stability than the livelier machine.

Now the aeroplane depends entirely on the maintenance of its correct flight speed for support, and, therefore, inherent stability implies that the machine possessing it shall always tend to increase its speed, if the speed is accidentally reduced. This quality can only be secured by the action of gravity, and acceleration in the line of flight due to gravity can only be obtained at the expense of a downward acceleration.

Now it is obvious that this accompanying downward acceleration, or rather the motion due to it, should be as small as possible, as involuntary downward motion is dangerous if the machine is low. Also, as the ratio between the downward acceleration and the corresponding horizontal one is the angle of descent with the motor stopped, or the gliding angle as it is usually called, it is a matter of importance, even when the machine is high, as effecting the choice of landing positions. Hence the importance of securing, as far as possible, that stabilising arrangements do not interfere with efficiency of the machine.

Theoretically, any machine which possesses the fundamental property of diving when it has lost its normal support from any cause is inherently stable, provided it is properly balanced fore and aft, for suppose such a machine to turn over till its wings are vertical. It will proceed to dive till it attains a vertical speed equal to its flying speed and will then flatten out and proceed on a course at right angles to the original. Which is to say that longitudinal stability alone will eventually bring a machine back from even a lateral disturbance but it will require a considerable amount of room in which to do so, as some, at any rate, of the forward velocity possessed by the machine at the moment of disturbance is wasted, owing to the change of course necessary, which in itself is a further objectionable feature.

Practically, therefore, it is desirable to correct lateral disturbances independently of longitudinal ones, and in addition it is well to reduce disturbances of all kinds as much as possible, partly on the score of comfort, but mainly to reduce the space necessary for recovery.

A very large number, in fact the majority, of existing machines probably possess actual inherent stability in the sense that, placed at a sufficient height in any position, they will, if all the controls are locked in normal flying position, or in many cases left entirely free, eventually assume their normal position. In most cases, however, a very great height would be necessary for this recovery.

Hence, practically, other qualities than the fundamental longitudinal stability are necessary, and it is convenient to consider the question in three divisions:—

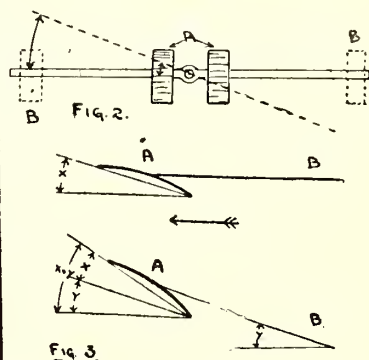
I.—Longitudinal stability.

II.—Lateral stability.

III.—Directional stability.

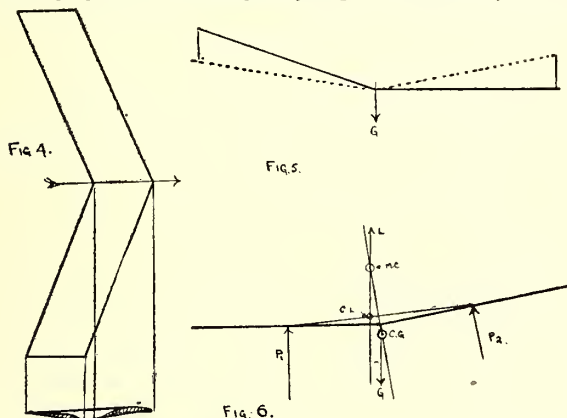
Longitudinal Stability.

This branch of the subject is probably more generally understood than any other, the principle of the longitudinal V, as it has been termed, having been employed by experimental workers in quite the dark ages. Fig. 3 shows the most common form in which this principle—that of setting the leading surface at a greater angle of incidence than those following it—is employed in practice. A is the actual lifting surface of the aeroplane, which at its normal angle of incidence X, supports the whole machine, the centre of pressure of A coinciding with the centre of gravity of the aeroplane. B is the stabilising surface or tail, so set as to produce no lift at the normal angle. Now, suppose the machine to pitch nose upwards through the angle Y. The total lift on A will not increase greatly, as the extra resistance due to the increased angle will slow the machine down. (Note we are assuming at the moment that the machine has just sufficient power for hori-



zontal flight.) The centre of pressure of A will move forward, which will tend still further to increase the pitching, but the tail surface B, instead of having no angle of attack and no lift, has an angle Y and a consequent lift, tending to swing the tail upwards, and restore the normal position.

Or, to look at the matter in another way, suppose a machine, having two surfaces in tandem with the weights so distributed that one surface is much more heavily loaded than the other, to be in still air and with no forward velocity. Obviously it will drop, and equally obviously the more heavily loaded surface will drop faster. If this more heavily loaded surface is the front one, the machine takes up a diving position and picks up speed, and consequently begins to lift. Any arrange-



ment of planes in which the leading plane, or even the leading part of a plane, has a greater angle of incidence than that which follows, shows this tendency—i.e., a plane with a double camber—the leading part cambered normally and the trailing part cambered in the reverse way, may be in itself stable, and Fig. 4 shows, by the little shaded sections, how a swept-back wing with a negative tip provides in itself the longitudinal V. This method of securing longitudinal stability is in practically universal use, and actually produces the desired result.

It is obvious that if a machine in flight meets an end-on gust its air speed is momentarily increased and that it will rise till its speed is reduced, and conversely as the gust dies away that the air speed falls and that the machine must dive to recover speed. These disturbances are essential to the stability, but their actual magnitude may be diminished by improvement of the gliding angle.

But an end-on gust may produce other disturbances. If the centre of head resistance is above the centre of gravity of the

machine, during the growth of the gust there will be a tendency to throw up the nose, and during its dying away to dip the nose, tending to exaggerate the movements which are due to the stabilising force. If, on the contrary, the centre of head resistance is below the centre of gravity, the forces will have the opposite tendencies, and will oppose the stabilising forces. The latter condition is obviously dangerous and the first is at least objectionable. Therefore it is necessary that the centre of total head resistance of the machine should be as nearly as possible in the same horizontal line as the centre of gravity, in order that the greatest stabilising effect should be combined with the least disturbance.

Lateral Stability.

Pure inherent lateral stability, i.e., that form of stability which ensures that, while the flight speed of the machine is sustained, it shall always return to an even keel on the removal of the disturbing force, is quite simply attainable.

In Fig. 5 the dotted lines show a pair of planes with a dihedral in a normal position, the full lines show the same planes tilted laterally. As the two vertical lines show, in the tilted position there is a greater resistance to downward motion on the low side than on the high, hence the high side will drop relatively to the low, till the normal position is regained. Provided that the centre of gravity is not too high, there will always be a restoring force with this arrangement.

Fig. 6 may be of some interest in this connection. Here P_1 and P_2 are the resultant pressures on each half of the wings at right angles to the planes. When the wings are tilted downwards to the left, say, the vertical effect of P_1 and P_2 will be slightly displaced towards the left, as shown at L, acting through C L (the centre of lift), and the vertical line through C L will intersect a central plane—about which the machine is symmetrical and on which the centre of gravity must lie—at some point above the centre of lift, as M C. As long as M C is above the centre of gravity the machine is stable laterally and M C is equivalent to the "metacentre" of a ship, the vertical distance between M C and C G being the equivalent of metacentric height. The conditions to be satisfied to provide simple lateral stability are practically the same in the two cases, and in the aeroplane the provision of a sufficiently low C G satisfies them, even without the dihedral. Unfortunately, owing to the large value of the disturbing forces (gust effects, etc.), compared with the supporting forces, which are also the righting forces, and to the fact that a large disturbance will greatly diminish these supporting and righting forces, we have to consider methods of reducing disturbances in order that recovery may become quick and may be completed before striking the earth.

(To be continued.)

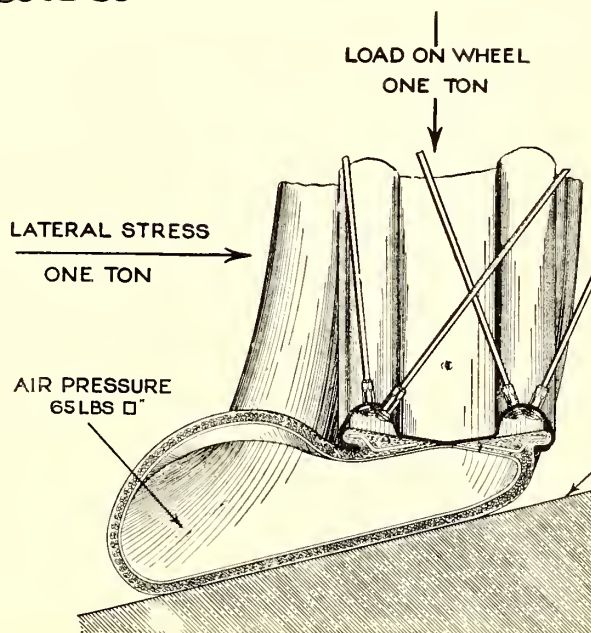
The New Palmer Aeroplane Tyre.

The Palmer Tyre, Ltd., have introduced a new aeroplane tyre built of the famous "Cord" fabric, whose abnormal strength enables them to construct these tyres for a much smaller weight than any other tyre of equal strength.

This light weight, however, is by no means their most valuable feature. The beads of the covers are made of a special shape and are fitted to a special form of rim, securing that the beads shall lock in the rim, and interlock with each other, making it impossible to tear the tyre off sideways—i.e., by landing across wind or while turning. Under test, a pair of these tyres (750 by 125 mm.), mounted on a tubular axle and inflated to 65 lbs. per square inch, stood up to a loading of 2 tons, plus 2 tons sideways thrust, without displacement or damage—this representing a considerably more severe test than ever is likely to occur in practice.

Both the rims and the tyres are made in two sizes—700 by 75 mm. and 750 by 125 mm. Further, Palmer Tyres, Ltd., supply canvas side wheel covers to form disc wheels. These are fitted with a very neat spring hook attachment to fit these special rims. Their weight is negligible, and owing to the ease of detachment there is no need for the unsightly holes (which must decrease the streamlining effect of such covers considerably) which have usually to be fitted for inflating.

Considering the extreme annoyance which the ordinary light aero tyre causes, these tyres should command a ready sale in this country, as one understands they already do abroad.



The Vickers School at Brooklands.

One of the most remarkable, and satisfactory, features of aviation in 1913 has been the success of the Vickers Flying School at Brooklands. Though by no means one of the oldest schools in this country, it has been uniformly successful in turning out really good fliers, accidents have been few, and the quality of the training has been singularly high. This happy state of affairs is due to two main causes. Firstly, to the fact that Captain H. F. Wood, the manager of the Aviation Department of Vickers, Ltd., wisely decided very early in the school's career that its policy should be to pay attention to the quality rather than to the quantity of the pilots it was to turn out. Secondly, it is due to the excellent way in which the school has been run by its chief instructor, Mr. Harold Barnwell, who was not only one of the first British fliers, but is to-day recognised by all who know what flying really is as one of the finest pilots in this or any other country.

Mr. Barnwell can, when he likes, put up an exhibition flight against the best of our show fliers, but he is old enough to know when to play tricks and when not to, and over and above this he has the priceless gift of imparting his knowledge, if not his skill, to others. Also he is an engineer of unusual ability, and can use a slide-rule or a spanner with equal facility, so that he combines practice and theory with the ability to teach. In running the school Mr. Barnwell has had the advantage of very able assistants. M. Charles Pelassy, the "mécanicien-en-chef," is one of the best engine tuners in the aeroplane business, and was one of the earliest, so that his experience is unsurpassed. Mr. Barnwell's first assistant instructor, Mr. Knight, is also a sound, safe flier and a fine mechanic with a gift for teaching. Mr. Knight is another of the old hands among pilots, for I well remember him taking his certificate in the dark ages of early 1911. The most recent addition to the staff is Mr. Elsdon, who, though he only learned to fly last year, already shows that he has the makings of a pilot who is at once a brilliant performer when need be, a careful flier, and a capable teacher. The various mechanics at the school are a particularly trustworthy set of men, who can be relied upon to keep machines and engines in first-class order, which is somewhat important to the pupil who values his life, but who, because he is still a pupil, has to rely implicitly on the judgment of others as to whether a machine is safe to fly or not. Many of the mechanics have been known to me personally since the early days of aviation and I have great respect for their ability.

The selection of the personnel of the school is a measure of the judgment with which Captain Wood has organised it throughout. The machines in use up to the present have mostly been propeller-driven biplanes of the type familiarly known as "box-kites," that is of the early Farman design. They are still used in many schools because of their low speed and slowness in moving fore and aft or laterally, so that the pupil has time to see what he is doing. They make no pretence to stability, but they are useful for learners, and, when kept in good order and only allowed out in suitable weather, they are as safe as any machine could well be for

beginners. The rest of the machines have been monoplanes, built all of steel, on which the more advanced pupils have been trained to handle aeroplanes with tractor screws instead of propellers. The result of the practise of grading the pupils' training from slow biplanes to comparatively fast monoplanes has been that Vickers pupils on joining the Royal Flying Corps have shown themselves to be capable of taking charge almost at once of the fast tractor-drawn machines such as the Avros and B.E.'s, instead of being put on the slower propeller-driven biplanes.

The advantages of this graduated system of teaching are so obvious, and the results have been so satisfactory in practice that Captain Wood has now found it worth while to elaborate the system still further. Also, the reputation the Vickers School has earned through sound teaching, and through the instructors having the knack of winning the personal esteem of their pupils, has resulted in more would-be fliers applying for tuition than the staff and the number of machines can handle satisfactorily, and a number of applicants have had to be refused admission, which is obviously not as it should be while this country needs pilots for the Services.

In consequence arrangements are now being made to enlarge and improve the whole school. At the present moment several new propeller-driven biplanes of the latest type are in hand, namely, that without any front elevator, and with a protected body in front. These will be somewhat faster than the ordinary box-kites and will form an intermediate stage between them and the tractor type. Because of the popularity of tractor biplanes in the Army, a number of tractor biplanes will also be built for the next stage of training. These will not be as fast as the high speed scouts used in the Service, but they will be a good deal faster than the propeller-driven machines, so that, though pupils may fly them without undue risk, there will be no difficulty about any pilot who is used to them changing to the standard military machines.

Incidentally, it is worth while mentioning that, after considerable experience, all those in charge of the Vickers School are definitely opposed to dual control machines, for they agree that the risk of a pupil interfering with an instructor's actions, or vice versa, increases the danger to both. It is considered safer for the pupil to study the instructor's movements in the air, and then take complete charge himself.

As the result of the new arrangements all the old monoplanes will be cast from service, and the school will be equipped, as soon as the works can manage it, with an entirely new stock of machines. Meantime, of course, tuition will go on as usual. Would-be aviators can be sure of the same excellent teaching as ever, and those who can afford to wait till the new types of school machines are ready would do well to put their names down now, so as to have the first opportunities under the reorganisation. Naturally the fitting out of what means practically a new establishment involves considerable expense, but enterprise in the right direction always pays in the end, so the Vickers firm may regard the future with comparative complacency.—C. G. G.

Mr. Hamel's Double Event.

A meeting was arranged for Wednesday, February 11th, at the Eastbourne Aerodrome, but as the weather was even more unfavourable than on previous occasions, the exhibition was postponed until the following day, when Mr. Hamel looped the loop several times before a large crowd. The wind was again over forty miles an hour, blowing in gusts off Beachy Head.

On February 14th, Mr. Hamel made a series of exhibition flights at Dunstall Park, Wolverhampton, before a very large crowd of enthusiasts. The wind was fairly high during the first flight and steadily became worse until during the last flight it had risen to forty-five miles an hour. At this point some rain fell and it was decided to finish for the day. Six loops were made during the afternoon. The crowd behaved in the most sportsmanlike manner imaginable and showed great enthusiasm and a due appreciation of the attendant difficulties.

On Sunday next the Garros-Hamel match takes place at Juvisy.

Mr. Hucks in Birmingham.

Mr. B. C. Hucks' popularity in Birmingham dates from 1912. An aviator had been engaged to fly there, but did not do so. Mr. Hucks, therefore, flew from London to Birmingham to relieve the situation. In 1913, Mr. Hucks gave further successful demonstrations, and also raced Mr. Hamel round the district. Last Saturday, he looped there for the first time, and from the large attendance one could judge his popularity. By 3 p.m. there were 20,000 people, at a moderate estimate, in the enclosure, though the wind caused many to think that there would be no flying. Mr. Hucks took out his 80-h.p. passenger Blériot and did some nice fancy flying, after which he took up Mr. Norman Holder, son of Sir John Holder, the brewer, and circled Sir John Holder's residence. Then he took his loop to 2,000 ft. and made 6 perfect loops. He was accorded an extraordinary ovation. Later, he made 6 more loops in succession. It is believed that this is the first time such a feat has been accomplished.

Flying at Hendon.

There was much good flying last Saturday in spite of a high wind and subsequent rain. From 2.45 p.m. onwards many exhibitions were made by the various Grahame-White pilots. M. Louis Noel flew the 80-h.p. Blériot and seemed quite happy on this new mount, and Mr. Reginald Carr performed well on the Grahame-White "tea-table" biplane, 50-h.p. Gnome. This machine possesses as many pet names as the Czar of all the Russias, one of the latest being "The Cottage Grand," apparently because of its diminutive size and the amount of piano wire which enters into its construction. M. Marty alternated on the 80 Morane and the 80 Blériot. Mr. J. L. Hall flew on his Avro, and Mr. Goodden did all but "boucle" on his Caudron, at the proper height for such gymnastics.

Owing to the high wind the St. Valentine speed handicap was abandoned, and a cross-country race was substituted. The machines were lined up near the railway embankment, facing the enclosures, in order to get them head to the wind, and eight competitors started off in turn. In spite of skilful handling, the three box-kites had a very bad time of it. Half-way through the three-lap race the rain started and the accompanying lull in the wind rather upset Mr. Reynold's handicapping, but still the finish was very pretty. Mr. Strange, on the bi-ruddered box-kite, won from Mr. Carr, on the "tea-table," by half an elevator boom, and Mr. Birchenough was only three seconds late. M. Marty and M. Noel finished very much behind, their handicaps, of course, telling against them when the wind dropped. Mr. Cripps, on the short-span box-kite, landed at Totteridge, on the South Herts Golf Course, fortunately managing to dodge the bunkers and other obstructions native to such institutions. Mr. Claude Grahame-White, who flew the Maurice Farman, retired after the second lap, while M. Verrier dropped out and returned after everybody else at a great height. Rain brought the flying to a close.

Sunday brought another severe gale, and the only pilot out was the indomitable Mr. Noel, who made a flight with a passenger on the tandem Blériot and two trips alone on the Maurice Farman.

Flying at Brooklands.

On Monday 9th, Mr. Jones on the Flanders and Mr. Alcock on the Sunbeam-M. Farman were out in the morning. Also the D.F.W., and Mr. Barnwell (by permission of Vickers, Ltd.) on the new Martinsyde in the afternoon. Major Brooke-Popham, R.F.C., was sighted en route for Salisbury on an 80-h.p. Gnome-Blériot. He switched off over Woking and glided from 6,000 ft. into Brooklands. He had flown from Shorncliffe and on three occasions was blown to a full stop by the wind. He left later for Farnborough.

On Tuesday 10th, Mr. Jones was up to 3,000 ft. in the morning. Mr. Raynham went up to 14,300 ft. with Mr. Hurst on the Avro, a British record. Mr. Barnwell was out twice on the Martinsyde. The D.F.W. went over to Farnborough and passed all the tests but the rolling. This it was unable to do, having landed across a ditch when arriving and bent an axle. It returned in the evening to Brooklands. On Wednesday 11th and Thursday 12th there was a south-west gale and no flying. On Friday 13th the only flying during the day was done by the Vickers school in the morning. On Saturday 14th, Messrs. Raynham and Jones were both out, and on Sunday Mr. Raynham made two flights in a very bad wind, one with a "ballot" passenger, a deputy for Mr. Spratt, of the R.A.F., who again won the free flight.

British-Built M. Farman's.

M. Verrier had a busy time on Monday delivering British-built Maurice Farman machines of the new type. On Thursday, February 12th, he tested the first of the British-built Maurice Farman's with monoplane tail and no front elevator, the wind at the time being about 45 m.p.h. Several flights were made round and about Hendon with passengers. M. Verrier finds these machines very quick on their lateral controls, and very fast. On Saturday, 14th, he started for Farnborough in a wind blowing about 50 m.p.h., but found progress so slow that he decided to postpone the delivery of the machine until later.

Consequently, on Monday he left Hendon at 9.30 a.m. with a passenger, and arrived at Farnborough about 35 minutes

later, at a height of 7,000 feet. Having landed there, Captain Becke, O.C., No. 6 Squadron, R.F.C., kindly flew M. Verrier back to Hendon on a B.E., whereupon M. Verrier took out a second British-built Maurice Farman of the same type, and flew it back to Farnborough, where he successfully put both machines through their acceptance tests.

Cellon in "Foreign Parts."

One hears with interest that the Sopwith "Tabloid" biplane, which put up such a wonderful performance in this country, is doped with Cellon. This is the machine which Mr. H. G. Hawker has taken to Australia with him. Cellon must be quite a popular dope "down under," as the Australian Government and Mr. J. R. Duigan have both had consignments sent them. Another Cellon-doped machine which has "gone foreign" is Mr. E. K. McClean's Short waterplane on which he is now flying up the Nile.

The Week's Work.

Weather Reports for Week Ending February 15th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Windy	Imposs.	Imposs.	Imposs.	Imposs.	Imposs.	Imposs.
Calshot ...	Rain	Rain	Very	Rain	Rain	Very	Imposs.
	Wind	Wind	Gusty	Wind	Wind	Windy	Windy
Eastchurch ...	Fair	Fair	Gale	Gale	Fair	Fair	—
Hendon ...	Windy	Fair	Windy	Windy	Wind	Windy	Gale
					Rain		
Montrose ...	Dull	Cloudy	Gale	Shower	Dull	Gale	—
Salisbury Plain ...	Imposs.	Imposs.	Imposs.	Imposs.	Imposs.	Imposs.	—
Shoreham ...	Wind	—	—	—	—	—	—
	Rain						

School Reports.

Hendon.—AT GRAHAM-WHITE SCHOOL: Instructor during week: Mr. Strange. Pupils with instructor: Messrs. Piercy, Green (strts). Strts alone: Messrs. Howarth, Cripps, and Francis. S's or circles alone: Messrs. Howarth and Cripps. Machines in use: Grahame-White biplanes.

AT EWEN SCHOOL.—Instructor during week: M. Baumann. Pupil circles alone: Lieut. J. L. Kinnear. Machines in use: 35-h.p. Caudron biplanes.

AT BLÉRIOT SCHOOL.—Instructor during week: M. Jules Teulade. Pupils strts alone: Messrs. H. O'Hagan and W. F. Cooper. Certificate taken: Capt. Burdett; passed all trials in very good style. Machines in use: Blériot monos.

AT HALL SCHOOL.—Instructor during week: Mr. J. L. Hall. Pupils with instructor: Messrs. Pinniger and Virgilio. Strts alone: Messrs. D'Arcier, Gering, Brooks, Virgilio, and Allen. Machines in use: Two Caudrons, one Avro tractor biplane, one 35-h.p. Blériot mono. Mr. J. L. Hall exhibition and passenger flights on Tuesday and Saturday. New "Penguin" mono in course of erection.

Brooklands.—BRISTOL SCHOOL: Instructors during week: Messrs. Sippe and Halford. Pupils strts or rolls alone: A.M. Locker 20 mins (2), Lt Binney 30 mins (4), Lt Lawrence 20 mins (3). S's or circles alone: A.M. Locker 10 mins (2). Machines: Two school biplanes. Tuition was possible only on Monday morning.

AT VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight and Elsdon. Pupils with instructor on machine: Lt Jackson (5), Lt Spencer-Warwick (2), Lt Mansergh (8), Lt Crosbie (1), Capt Ross-Hume (5), Mr. Hurst (1) (biplane). Strts or rolls alone: Lt Jackson (3) (biplane). S's or circles alone: Lt Jackson (1), Lt Crosbie (3), Lt Prichard (4) (biplane), Messrs. Hinshelwood (1) and Chataway (1) (mono). Certificate taken: Lt Prichard on biplane. Machines: Two biplanes; one mono.

Eastchurch.—The Hon. Maurice Egerton made a fine flight on his 50 Short biplane on Tuesday. The same morning Mr. Sydney Pickles arrived driving his own car, and later left for town. It is interesting to note that it is his right leg which was broken, therefore when driving his car he pedipulates the clutch (as usual) with his left foot and uses only the hand-brake. Everyone wishes him a speedy complete recovery.

Shoreham.—AT PASHLEY SCHOOL.—Instructors during week: Messrs. C. and E. Pashley. Pupils out with instructors on Tuesday. A new Farman type biplane (50 h.p.) is now nearing completion.

Salisbury Plain (BRISTOL SCHOOL).—Fog, high winds and rain prevented tuition at this school during the entire week.

SPARS BOOMS

and all
AEROPLANE
PARTS to
makers' own designs

Send us your Requirements and let us quote for you.

R. CATTLE,

*Machine Woodworking
to the Trade,*

27 Wybert St.
Stanhope St., N.W.

STRUTS SKIDS

"EMAILLITE"

THE PREMIER DOPE
British Manufactured

"AS TIGHT AS A DRUM."

*As adopted by H.M. Government and
all the leading Manufacturers.*

The **BRITISH EMAILLITE Co., Ltd.**

30 Regent Street, Piccadilly, S.W.

Phone, 280 Gerrard. Wire, Santochmo, London



No User of Tools can Afford to be Without our Notable Catalogue
of Labour Saving Tools

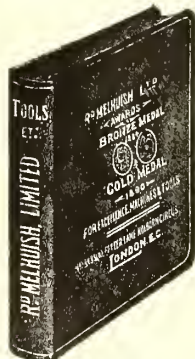
"Recollection of Quality remains long after the price is forgotten."

UNIVERSAL WOODWORKERS' CRAMP. New Design. Instantaneous Action

TOOLS

New Wood Workers. No. 21

6d. postage. 383 pages.



Write for New Engineers' and
Metal Workers' (all trades) Cata-
logue No. 20

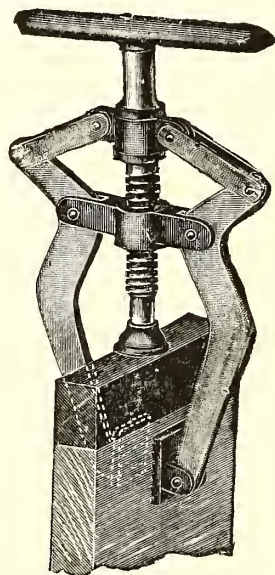
Contains 560 Pages, ENTIRELY
FREE on receipt of 1/-, to defray
cost of post and packing.

Largest Stock of Tools and
General Fittings in Gt. Britain
Write us your requirements.

Established 1828.

R. MELHUISE, Ltd., 50-51, 84, Fetter Lane, E.C.

Tools, Machinery & Hardware Merchants. 143, Holborn Bars.



No 987w. Has a single screw which
works both arms... each 3/6

No 988w. Has a double screw; the
longer one may be used inde-
pendently while the two arms
grip the work. The wing nut on
top locks the arms ... each 4/6

One Moment—Mr. Aviator!

Just reflect how easily little
mishaps occur. Be prepared.

You can dress wounds promptly
and properly by means of this
pocket outfit of bandages, etc.



Burroughs Wellcome & Co., London

'TABLOID'

TRADE MARK

BRAND

FIRST-AID

No. 706 (Aviator's)

Price, 7/6. All Chemists

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this
office by 6 p.m. MONDAY, to ensure insertion.
For the convenience of Advertisers, replies can be received at
the office of THE AEROPLANE, 166, Piccadilly, W.

Special PREPAID Rate—18 words 1/6; Situation
Wanted ONLY—18 words 1/- 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND
AND ABROAD." (By Arthur E. Edwards,
F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS &
CO., LTD., Patent Agents and Consulting Engineers,
Chancery Lane Station Chambers, W.C. Phone 4530
Holborn.

PATENTS. Instructive leaflet Free, from STANLEY,
POPPLEWELL & CO., Chartered Patent Agents,
38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions. Particulars
with advice, sent free.—Write, KING, Registered
Patent Agent, 165, Queen Victoria Street, London.

THE owner of British Patent No. 6153 of 1911, entitled
"Improvements in Air Propelling and Support-
ing Vane Surfaces for Flying Machines," is desirous
of disposing of the patent or entering into working
arrangements, under licence or otherwise, with firms
likely to be interested in the same. The invention
covered by the patent is of such a character that a
machine constructed in accordance therewith is capable
of ascending vertically, hovering stationarily, great
horizontal speed, and automatic stability for all direc-
tions and speeds, all of which can be satisfactorily
demonstrated by trial. A copy of the patent specifi-
cation and full particulars can be obtained from and
offers made (for transmission to the owner) to MARKS
& CLERK, 57 and 58, Lincoln's Inn Fields, London,
W.C.

TUITION.

THE GRAHAME-WHITE SCHOOL OF FLYING
possesses innumerable advantages. The tuition
fees are low and inclusive; its instructors are highly
capable, its machines most suitable, and the London
Aerodrome at Hendon, where the School operates, is
only 6½ miles from Marble Arch, and is within easy
access from all parts. Prospective pupils should write
for illustrated prospectus to the GRAHAME-WHITE
SCHOOL, London Aerodrome, Hendon, N.W. Tele-
phone, Kingsbury 120. Or 166, Piccadilly, W.

VICKERS, LTD.—AVIATION SCHOOL at Brook-
lands. Thoroughly graded tuition from slow
biplanes to fast monoplanes.

**W. H. EWEN SCHOOL OF FLYING,
CAUDRON BIPLANES & MONOPLANES.**

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work, £50. Passenger flights from £2 2s.

HALL SCHOOL OF FLYING.
Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.
Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to **HALL AVIATION CO.**, London Aerodrome, N.W.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

TUITION AT REDUCED FEES.—Pashley Bros. are prepared to take a limited number of pupils for R.A.C. brevet, at specially reduced fees.—Apply **PASHLEY BROS.**, Shoreham Aerodrome, Sussex.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from **THE SHOREHAM FLYING SCHOOL**, Shoreham Aerodrome, Sussex.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.**, 1, Queen Victoria Street, London. Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE**, 166 Piccadilly, W.

ENGINES

35 H.P. Avro, 2-cylinder (opposed), air-cooled, Siemens magneto, B. & B. carburettor, complete with propeller, etc., £45, or motor-cycle part.—40, Cambridge Gardens, Edinburgh.

EMPLOYMENT.

WANTED, for aeroplane work, good coppersmith, used to sheet aluminium work. Also young fitters, able to work accurately to drawings. Experience of steel tube work preferred.—Reply, stating age, experience, and wages required, to Box 535, c/o **THE AEROPLANE**, 166, Piccadilly, W.

MISCELLANEOUS.

INVENTORS' ideas developed. Experiments conducted. Models made. Highest skilled mechanicians. Low charges. Secrecy guaranteed.—**BRAUN**, Engineer, King's Cross.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD.**, Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD.**, 130, Hackney Road 'Phone 4770 Wall.

MODELS.

M.S.C. DURATION model, size 30 inches by 24 inches, 5s. Flights of nearly a 1/4 mile have been obtained with this model. Set of finished parts for constructing above model, 2s. 6d.—**MURRAY, SON & Co.**, 387a High Rd., High Cross, Tottenham, N.

T. W. K. CLARKE & Co., Hampton Wick, Middlesex
'Phone: Kingston 869.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our **New Illustrated Models Catalogue** now ready, contains **Sopwith Tractor, Deperdussin, Bleriot, Canard, Clarke Mono**, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic 10d. per doz. yds

S. J. KEMP & Co.,
CROWN WORKS, Kingston-on-Thames.
(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)
Every Requisite for Model Aeroplanes. Send 1d. for List.
Models of Every Description built promptly.
Phone 321 Kingston. Telegrams "Garage, Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the
"AERO-RESTAURANT"
Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE
Ready for use at once.

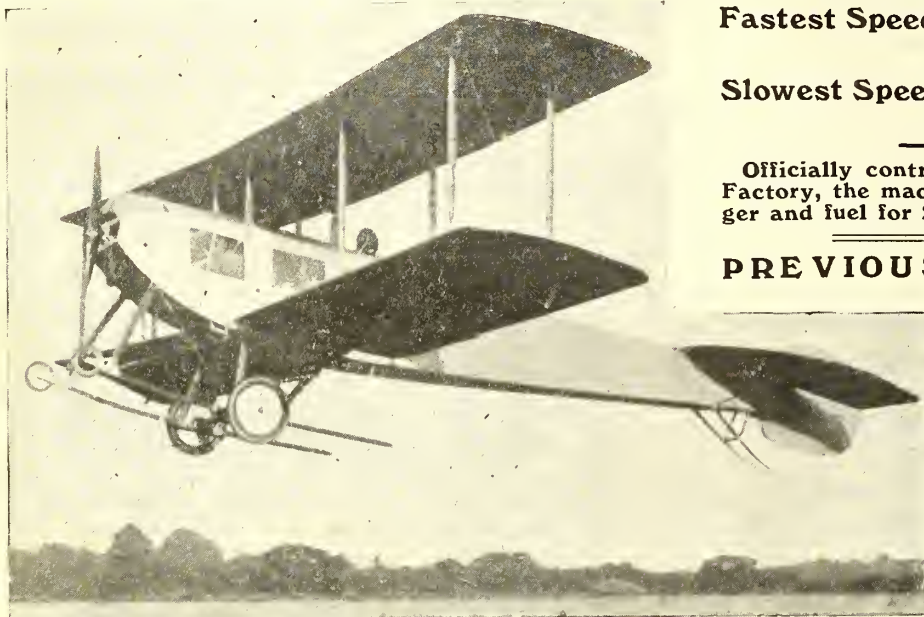
USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnome) beat all WORLD'S RECORDS FOR EFFICIENCY.



**Fastest Speed 92 miles
(154 kms.) per hour.**

**Slowest Speed 36.9 miles
(61 kms.) per hour.**

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

**PREVIOUS RECORDS on
the preceding type
of SOPWITH
BIPLANE (80 h.p.
Gnome).**

**British Height Record
(Pilot alone) 11,450 ft.**

**British Height Record
(Pilot and 1 Passenger)
12,900 ft.**

**British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.**

**WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.**

**ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.**

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works: KINGSTON-ON-THAMES.

Telegrams:
"SOPWITH KINGSTON."

FLYING AT HENDON

SATURDAY NEXT, FEBRUARY 21st, 1914
SUBURBAN MEETING. 16 mile CROSS COUNTRY RACE 3.30 p.m.

COMING EVENTS.

Sat., Feb. 28th. HENDON MEETING.
Sat., March 7th. MARCH MEETING.
Sat., March 14th. MIDDLESEX MEETING.
Thur., Mar. 19th. DESOUTTER BENEFIT MEETING.
Sat., March 21st. AERO SHOW SPEED CONTEST.

WINTER SEASON—RACES EVERY SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

Admission, 6d., 1s., 2/6 (Children Half-price).

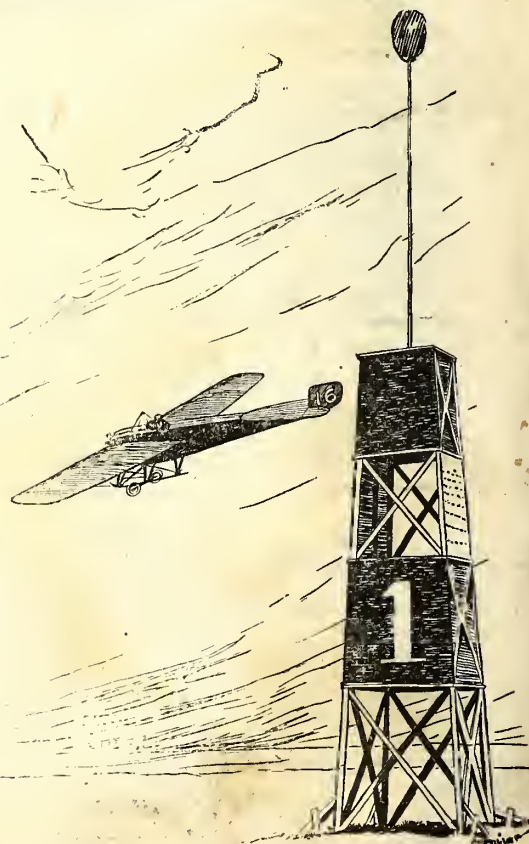
Motors (including chauffeur), 2/6

PASSENGER FLIGHTS DAILY FROM £2 2 0.

The London Aerodrome, Hendon

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."
LONDON: 166, Piccadilly, W. Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."



THE AEROPLANE



Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, FEBRUARY 26, 1914

No. 9

DURATION.



Herr Karl Ingold, holder of the World's Duration Record with a non-stop flight of 16 hrs. 20 mins. on an Aviatik biplane (100 h.p. 6-cylinder Mercédès engine).

Tuition at the Beatty School of Flying

■ ■ ■ ■ ■ ■ ■ ■

The Wright biplanes in my school have the usual foot-bar for steering, and wheel and pillar for warp and elevator. Pupils trained to fly on these machines are able to fly any other type without special practice.

When their training is completed, they have not merely taken their certificates, they are trained pilots.

■ ■ ■ ■ ■ ■ ■ ■

Tuition on { HANDLEY-PAGE MONOPLANE } £75
 { WRIGHT BIPLANES . . . }

Beatty School of Flying,
 London Aerodrome,
 Hendon, N.W.

SPECIAL TERMS TO
 NAVAL & MILITARY OFFICERS.

The "Bristol" *Flying Schools*

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. □ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.				ABROAD.			
	s.	d.			s.	d.	
3 months, post free	1	8		3 months, post free	2	9	
6 " " "	3	3		6 " " "	5	6	
12 " " "	6	6		12 " " "	11	0	

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Army and the Aeroplane Industry.

Ever since the formation of the Department of Military Aeronautics it has become more and more evident that the purchase of aeroplanes for the Army is to be purely the affair of the Army itself and that the Royal Flying Corps is freeing itself from the civilian leading strings which have hitherto made it a kind of aerial Laocoon. The latest evidence is that grateful and comforting document "Communiqué 87/2399" issued by the War Office on Wednesday last relating to tests for aeroplanes of private design. The text of this is as follows:—

Tests for Aeroplanes of Private Design.

1. The Chief Inspector of Military Aeronautics is prepared, on the request of an aeroplane constructor, to put an aeroplane through the ordinary military acceptance test under the following conditions:—

(i) The test consists of examination of workmanship and materials, speed test, fast and slow, climbing, weight of load carried, rolling test, and one hour's flight. The constructor must supply the pilot and passenger. For purposes of calculation weights of pilot and passenger will be 160 lbs. each.

(ii) Stress diagrams in duplicate for the aeroplane must be sent with or before the machine. A minimum factor of safety of 6 throughout is essential.

(iii) No machine will be tested for military purposes unless it fulfils the condition of one of the types used for military purposes. These are given in attached table.*

(iv) The constructor, when applying to have his machine tested, should state his reasonable expectation of the performances of the machine.

(v) Aeroplanes submitted for test must be put through the whole of the tests unless damaged before their com-

pletion, or unless the Chief Inspector considers that the tests should be stopped for reasons of safety.

2. The Chief Inspector of Military Aeronautics is also prepared to examine and test aeroplanes which may be designed not for purely military purposes, but to demonstrate some practical or theoretical improvement in design or construction. The tests imposed in such cases will be at the discretion of the Chief Inspector.

3. Results of any test will be supplied to the constructor by the Chief Inspector, and will be kept secret, if desired by the constructor. Should the constructor wish to publish the result of the test, it is to be understood that the result should be published complete. Should only part of any report of the test be published, the Chief Inspector reserves the right to publish it in full.

4. The satisfactory performance of the tests laid down in paragraph 1 does not constitute a guarantee that the aeroplane in question will be purchased by Government.

5. These tests may be altered from time to time; notice will be given as early as possible of any alteration.

War Office, February, 1914.

It is doubtful whether such comprehensive brevity has been seen in any literary effort since Mr. Balfour produced his historic half-sheet of note-paper, but brevity is ever the soul of wit, and the absence of superfluous verbiage is typical of the Chief Inspector of Military Aeronautics. Let us hope that the same spirit may prevail in all future dealings between the Army and the aeroplane industry. Until recently any business transaction with any department of the War Office was accompanied by more formality between the "high contracting parties" than is likely to surround even the signatories to the peace-treaty after Armageddon, but in these days we move

*** Performances Required from various Military Types.**

	LIGHT SCOUT.	RECONNAISSANCE AEROPLANE (a).	RECONNAISSANCE AEROPLANE (b).	FIGHTING AEROPLANE (a)	FIGHTING AEROPLANE (b).
Tankage to give an endurance of	300 miles.	300 miles.	200 miles.	200 miles.	300 miles.
To carry	Pilot only.	Pilot and observer plus 80 lbs. for wireless equipment.	Pilot and observer plus 80 lbs. for wireless equipment.	Pilot and gunner plus 300 lbs. for gun and ammunition.	Pilot and gunner plus 100 lbs.
Range of Speed	50 to 85 m.p.h.	45 to 75 m.p.h.	35 to 60 m.p.h.	45 to 65 m.p.h.	45 to 75 m.p.h.
To climb 3,500 feet in	5 minutes.	7 minutes.	10 minutes.	10 minutes.	8 minutes.
Miscellaneous qualities	Capable of being started by the Pilot single-handed.	—	To land over a 30 ft. vertical obstacle and pull up within a distance of 100 yds. from that obstacle, the wind not being more than 15 m.p.h. A very good view essential.	A clear field of fire in every direction up to 30° from the line of flight.	A clear field of fire in every direction up to 30° from the line of flight.

Instructional aeroplanes with an endurance of 150 miles will also be tested under special conditions; safety and ease of handling will be of first importance in this type.

swiftly. The direct route of the aeroplane seems to be affecting even Government methods.

Despite the above pious expression of opinion—as relating to others—it seems worth while to examine the Communiqué in detail, especially as there seems to be a disposition in some quarters to criticise it adversely.

The New Era.

Firstly, it is a distinct concession to the industry that the Department of Military Aeronautics should consent to test any and every machine submitted, even subject to the reservations shown. No one can quarrel with paragraph 4. A machine might pass every test with ease and yet be quite useless for military purposes, but, knowing something of the men responsible for the Inspections Department, one can say with confidence that if such a machine has its good points the maker will receive excellent advice as to how best to make it acceptable for use by the R.F.C.

Herein lies, perhaps, the greatest difference between the new and the old system. The maker of aeroplanes or engines is now dealing with officers in the King's Service, and may be sure of courteous and sympathetic treatment, whereas hitherto he has had to submit to the domineering incivility of minor officials who not only sneered at his work but picked his brains for the benefit of an establishment which was in direct competition with him. If some of the leading spirits in the Royal Aircraft Factory had been better chosen at the start these things need not have been, but, unfortunately, the general tone of the minor officials seemed to be modelled on someone who, apparently unused to the true tone of Government servants, endeavoured to combine the haughtiness of an eighteenth century French nobleman with the manner of an East End Jew money-lender trying to work off the spite of centuries on his Gentile customers. True, continual complaints, followed by salutary tail-twisting by those in higher authority have improved matters, but the harm has been done, and now at last the Army will manage its own affairs.

A sociological friend pointed out to me recently that the course of events as we have seen them here is but an indication of our national future, showing the failure of Socialism and the ultimate rise to power of a Military Aristocracy. Perhaps he is right. Anyhow, the military aristocrat is infinitely preferable to some of these scientific socialists. However, this is getting rather a long way from our Communiqué. Let us try back a bit.

Some private constructors may have some difficulty about stress diagrams. Presumably, for the time being at any rate, the system of stress diagrams used by the Inspections Department must be that evolved by the R.A.F. I am told they are based on insufficient premises, something like the old puzzle, "Think of a number, Double it, etc., etc. Take away the number you first thought of," and so forth. Not being a scientist, I do not profess to know, but there are certain worthy jugglers with figures among my friends who would, I am sure, be pleased to set their troupes of performing formulæ to work for the benefit of any designer who wishes for advice on the subject or who has no time to work the stresses out on the official system, especially as their own method may be better. Letters should be addressed "Slide Rule," c/o this office, and will be forwarded to the "man who knows." Seriously though, the R.A.F. method of calculation has been proved wrong by at least two reliable men of my acquaintance, and one hopes the Inspections Department will overhaul it carefully. Meantime, it is not sufficiently far out to do anyone a serious injustice, and I am told that its worst fault is that it is possible to get a really unsafe machine through it.

Paragraph 2 shows the wish to help any real improvement forward, for a non-military experimental machine would more easily obtain financial support if hall-marked by a favourable report from the Inspections Department. Paragraph 3 is a necessary safe-guard for everyone concerned. It prevents an unscrupulous manufacturer (we shall be afflicted with such people some day) from advertising to the world at large that his machine attained a record speed under full load under military supervision, and omitting to state that the speed was attained by cutting down the chassis so that on landing the machine overturned and killed the pilot and passenger. For the honest manufacturer it affords opportunity for the finest

advertisement possible, namely, undisputable official figures, instead of times and distances guessed by the pilot himself.

The Performances Required.

Let us now turn to the table setting forth the performances required. These requirements seem exceedingly moderate, judged by the latest productions of our most go-ahead constructors, and certainly no machine which could not pass them is worth looking at for military purposes. Evidently it is the intention of the Director-General of Military Aeronautics to give every promising machine a fair chance, but it would be absurd to purchase a machine which only just passed these tests unless it presented some other outstanding advantages.

Incidentally I regret to find that my good friend and ally Mr. C. C. Turner has, in his zeal, allowed his King Charles's head, the R.A.F., to obscure his usual clarity of vision, for he attributes the moderation of the requirements to a desire to let in the B.E. type biplanes, which, judged by the most modern standards, are now obsolete, as is shown by the fact that the R.A.F. is itself busy building "R.E.s" instead, and, it is said, has no intention of allowing outside contractors to build them. The independent designer has to beat the "R.E." and "S.E." and "F.E.," not the "B.E."

The "R.E.s" in question are those referred to by Colonel Seely last week when he said that 24 machines of a "special type" are on order from the R.A.F. They are fitted with 120-h.p. Beardmore-Daimlers, of which we were told some time ago that a hundred had been ordered by the R.A.F. I learn that 50 sets of fittings for these R.E.s are being rushed through with urging, so we find 24 on order, 50 are wanted urgently, and 100 engines are ordered for them. Also, the "R.E.s" are not to be ordered from contractors, who must be content with "B.E.s" till it suits the political people who pull the strings to state again that the Government design is so much better than private designs. These "R.E.s" are the machines referred to in the "Times" as being "two years ahead" of the independent designers.

Further, Mr. Turner seems wrong on the "field of fire" question. Here are his remarks on the subject:—

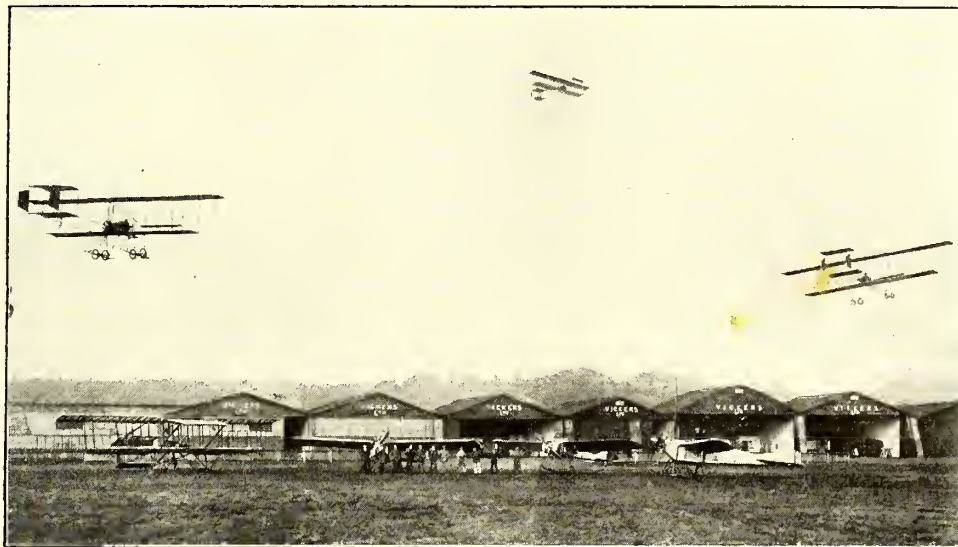
"But what sort of provision do the tests make for gun fire? They stipulate for a clear field of fire in every direction up to 30 deg. from the line of flight. In other words, the gunner must be able to fire in all directions save just ahead, where the tractor screw gets in the way, and just behind, where the tail of the machine obstructs. So that all machines save the tractor division are barred; yet the tractor division is the most unsuitable of all for aiming."

As a matter of fact, the requirement really is for a field of fire inside an imaginary cone whose apex is the gun, and whose centre line is the horizontal line of flight (namely, a line drawn forward from the gun). Then a line from the apex to any point on the periphery of the base must make an angle of not less than 30 degrees from the centre line. It simply means that the gun must at least have a traverse of 60 degrees up and down or from side to side, and anything in between in any direction. Surely a very moderate demand, and one which can *only* be fulfilled by a propeller-driven machine, unless one adopts the particularly foolish expedient tried by the Deperdussin firm in France, and therefore largely illustrated in the British Press, of standing the gunner in a kind of conning tower which overlooks the propeller.

That arrangement means decreasing propeller efficiency and upsetting the centre of head resistance, so it is altogether beneath contempt. There is, however, just a possibility for a totally enclosed biplane, like the Military Competition Avro, with the gunner and his gun projecting through the top plane, with a clear arc of fire all round upwards and on a level with himself, but only a limited field downwards. As the armed aeroplane will probably be slower than the light scout, and will therefore be attacked from above, this arrangement for self-defence has something to recommend it.

For the rest, one can only commend all the requirements frankly and freely, and wish they had been made a little stiffer. The low speed might well be lower and the high speeds higher. The climb might have been faster. All machines should be startable single-handed, for this only means fitting a quick-release gear. And one wishes that warping wings had been definitely barred.

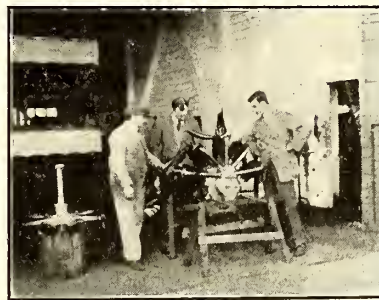
LEARN
TO
FLY
AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS Flying School, Brooklands



Instruction on the Biplane



Instructing Pupils in Aero Engine



Chief Pilot Barnwell

VICKERS, Limited,
AVIATION DEPARTMENT,
VICKERS HOUSE, BROADWAY,
WESTMINSTER, S.W.



Assistant Pilot Knight

However, one can cordially recommend all constructors and designers, whether firms or private individuals, to place themselves and their designs, present and future, unreservedly in the hands of the Inspections Department. They will receive perfectly fair treatment, probably they will acquire valuable knowledge from the advice given them on technical points, and they will certainly be told plainly what is the best thing for them to do if they want to sell their machines to the Army in anything like quantities.

Practically ever since the Army began to take flying seriously my colleagues and I in this paper, assisted by a few enlightened writers on the lay press, have agitated for a system such as now seems to be coming into being. We

have had hardly any assistance worth mentioning from other technical writers, who have rather tended to become apologists for the deleterious civilian influences which have hindered the progress of the Royal Flying Corps and the aeroplane industry alike. We make no claim to personal originality now that our theories and forecasts have proved to be correct, for they were merely reflections of the minds of other people who knew what they were talking about, or else they came from following events to their logical conclusions. However, in that those things which we advocated and foretold are coming to pass, we are now beginning to feel that our time has not been wasted. It is very comforting to be able to say "I told you so."—C. G. G.

The Wittering Accident and its Cause.

It is with great regret that one places on record another fatal accident to an employee of the Royal Aircraft Factory on an experimental aeroplane. On Monday, the 23rd, Mr. Ronald Kemp, one of the regular test pilots of the R.A.F., was flying the gun-carrying biplane, F.E.2, with Mr. E. T. Haynes, a draughtsman at the R.A.F., as passenger, from the camp at Wittering, near Chichester, where a detachment of the R.F.C. has been for some time carrying on experiments with armed aeroplanes. When flying comparatively low and turning, the machine fell nose first into a ploughed field near a road. Mr. Haynes died a few minutes after being extracted from the wreckage, but Mr. Kemp escaped with a broken thigh and other injuries which are very serious.

Mr. Kemp is one of the most skilful fliers in this country, and, fond as he was of excessive banking and trick-flying, he always performed at such a height that he was in no danger so long as his machine held together, though one felt that he occasionally put strains on the machines which were likely to tell against them later on. On this occasion it seems clear that as he was so low down he was not playing tricks, so one may acquit him of responsibility on that score.

The cause of the accident seems perfectly obvious. The F.E.2 was a warping-wing propeller-driven biplane, 70-h.p. Renault, with a very deep projecting nacelle (or body) intended to carry a machine-gun. There is an enormous side area forward and none aft, except the rudder, which, in turning, decreases its side area just when most required, and

is not a fixed surface at any time. Removing the gun (as on this occasion) would bring the centre of side area far in front of the centre of gravity, the heavy Renault engine being well behind it.

The report of our Shoreham correspondent of a few days earlier shows that this same machine was flying badly, obviously owing to the badly-designed warping wings of R.A.F. make becoming sloppy after long use. This would make the machine sluggish in control, and, anyhow, the warp was comparatively ineffective at best. In turning, the machine would answer the rudder quickly, but would not bank correspondingly in response to the warp, with the result that the tail would spin round, and then the whole machine would spiral uncontrollably round the big nacelle. Curiously enough the continuation of Mr. Sayers' article this week deals precisely with this phenomenon.

Anyone with even an elementary knowledge of aeroplane design would have expected precisely such an accident, and one can only regret that the designer of the machine was not the passenger in place of the unfortunate Mr. Haynes, who is the victim of the ignorance of others.

Mr. Ewart Temple Haynes was a son of the late Commander Haynes, R.N., who commanded Queen Victoria's yachts. His widowed mother and his only sister live at Thatcham, near Newbury, Berks, and his brother is in the Navy. To them one offers the respectful condolences of all concerned with aviation.—C. G. G.

Altering Royal Aero Club Rules.

The Marquess of Tullibardine, the Chairman of the Club, presided at a Special General Meeting held on the 17th inst.

Col. H. C. L. Holden presented a statement regarding Rule 9 of the Club Rules dealing with the method of election of the Committee. The following members took part in the discussion:—Mr. A. S. E. Ackermann, Mr. Harry DeLaCombe, Mr. J. H. Ledeboer, Mr. M. O'Gorman, and Mr. C. C. Turner.

The recommendation of the Committee to add the words "or less" was eventually carried, the voting being 40 in favour and 10 against.

Rule 9 now reads as follows:—

"Invalid Ballot Papers.—No ballot paper which is signed or on which the number of Candidates voted for is more or less than the number of vacancies or which is received by the Secretary later than 12 noon on the day preceding the Annual General Meeting shall be valid."

It is obviously unfair that a meeting of 50 members out of some 1,400 should have power to alter a rule so that in its operation it may alter the whole course of aeronautics in this country. One hesitates to accuse the Committee of "packing" the meeting, but certainly the notice was unduly short, and anyhow a postal vote is the only fair method of deciding so momentous a question. No one has yet explained why a member should be compelled to vote for a candidate whom he may dislike as the alternative to invalidating all his votes, which is how the rule frequently operates in its present form.

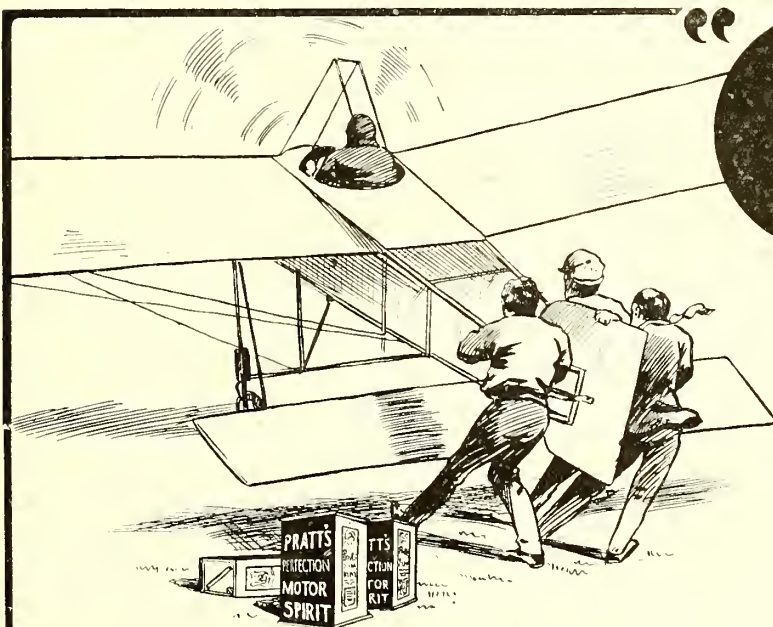
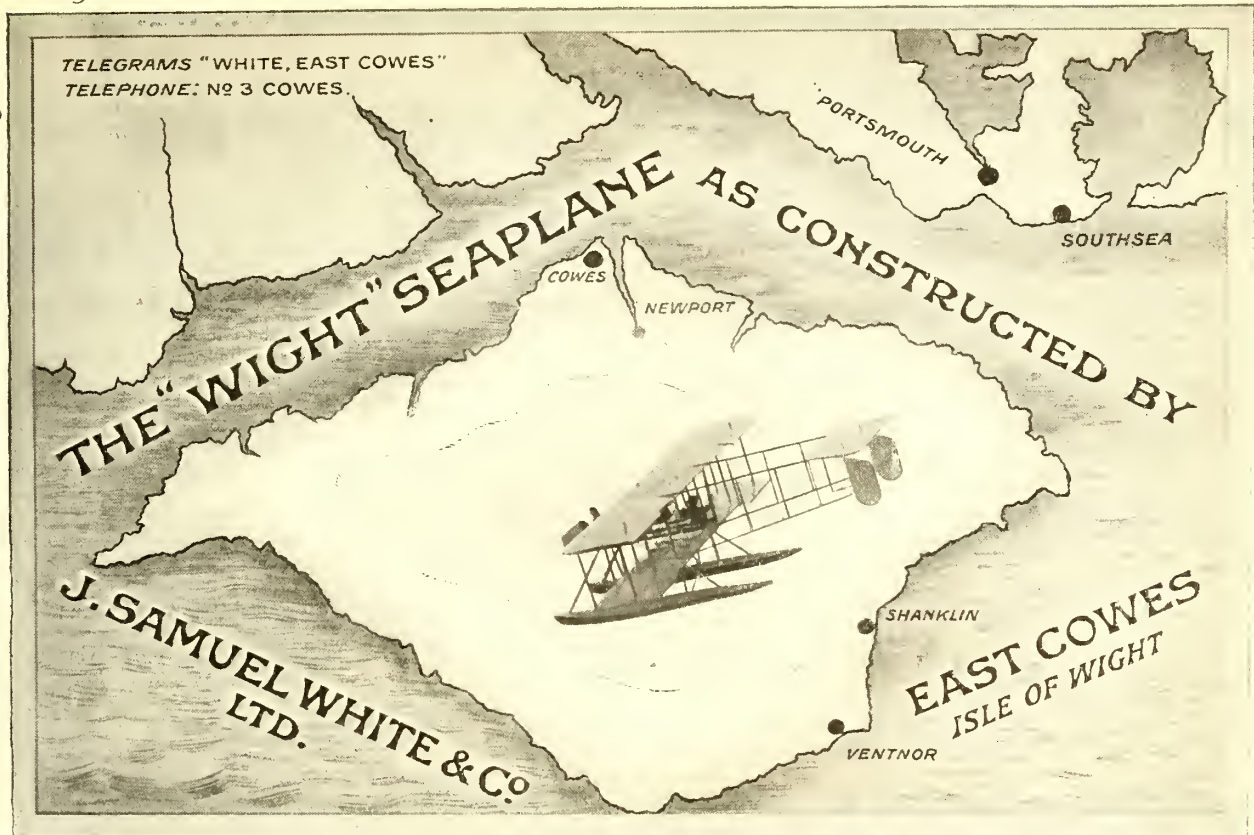
Further, as the rule stood it expressed the feelings of last

year's annual general meeting, and in common decency it should have remained unaltered till it had operated in at least one election. One gathers that no less than 11 out of the 40 voting in favour of the alteration were members of the present Committee, who, one thinks, would have done better to have refrained from voting on this question.

Happily, the eight candidates so far nominated for the next election are all excellent. One rejoices to see that Commander Samson, R.N., is able to offer himself for re-election. Also, Mr. Fred May and Mr. Robert Loraine are of just the type required. For a ninth one would like to see one of the Naval Engineers of the Air Department at the Admiralty, or, if that may not be, an unprejudiced observer of mankind like Mr. Sassoon, himself a pilot-aviator. At any rate, one hopes the "back numbers" will have the decency to stand down in favour of better men.

The Aeronautical Society.

Official Notices.—1. Meeting. The eighth meeting of the present session will be held on Wednesday, March 4th, at 8.30 p.m., when Mr. Mervyn O'Gorman, C.B., M.I.M.E., A.F.Ae.S., will preside. Mr. Archibald R. Low, M.A., A.F.Ae.S., will read a paper on "The Rational Design of Aeroplanes," followed by a discussion. 2. Annual General Meeting.—The annual general meeting of the Society will be held on Wednesday, March 18th, at 8 p.m., at the Royal United Service Institution, Whitehall, S.W. (Rule 39.) The last day for the receipt by the Secretary of notice in writing from any voter wishing to propose any subject for discussion at the annual meeting is March 3rd.—B. G. COOPER (Sec.).



Mr. B. C. Hucks, the popular demonstrator of "Looping-the-Loop" and Upside-down Flying, and many other noted Airmen, use Pratt's Perfection Motor Spirit, because they are confident that its 100 % Purity is responsible for the reliable working of the engine.



By Appointment

PRATT'S Perfection
Motor Spirit

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Aeronautical Services of the U.S.A.

BY W. E. de B. WHITTAKER.

The unenvied is invariably safe from attack and the unenvied make few preparations for defence. It is not necessary. But sometimes circumstances change and a one-time unenvied country grows in wealth and prosperity. Then its neighbours become jealous and, too late, it becomes essential to create an army and a navy. The United States has not suffered from any lack of conceit and its neglect to train adequate defence forces is due rather to arrogance than to carelessness. The American Navy, at one time the only "ruins" the nation possessed, has now excellent matériel even if the personnel is not all that might be wished. The army, unaccustomed to any work other than that of policing the Indian Reserves on occasion, and taking a very minor part in the Hispano-American War, lacks that experience which gives an army the initial impetus towards efficiency. There is no time to think of the defence forces. Money must be made that the true-born American may get out of his country and journey towards civilisation and happiness.

It is not surprising to find in a country which pays so little attention to defence that military aeronautics has been treated with consistent neglect. This, too, in the birthplace of practical aviation. Such pilots as there are fly with great skill and are enthusiastic, but they lack machines, money and organisation.

At present the United States Army is divided into six great territorial divisions, each of which is a tactical unit capable of working independently.

It was proposed to attach to each of these tactical units an aeronautical squadron also complete in itself. The organisation of each squadron is as follows:—In the squadron are two companies, each of two platoons. Each platoon has in it two aeroplanes, four officers and ten rank and file. The squadron staff is as follows: One major (commanding), one captain (adjutant and supply officer), two master signal electricians, two first-class sergeants (a sergeant-major and a supply-sergeant), six corporals (motor-car drivers), and two first-class privates (musician orderlies).

The company has eight officer-aviators (captains or first-lieutenants), one executive and property officer (captain or lieutenant), one master signal electrician (to replace civilian electrician at present employed), two first-class sergeants, five sergeants, nine corporals, two cooks, fourteen first-class privates, and six privates.

Thus the numbers are as follows for the squadron:—

	Officers.	Rank and file.
Squadron staff	2	12
Two companies	18	78
Total	20	90

It is proposed that four of these squadrons shall be formed and be attached to the four divisions ready for active service. Probably they will never be formed in this or any other form. Congress will not vote money for military preparations until the enemy is lunching in New York.

Each aeroplane in these suggested squadrons is to have two officer pilots and five men attached to it for service.

The transport for the suggested squadrons is as follows:—Squadron headquarters, one aeroplane tractor for personnel (to take seven passengers), three aeroplane tractors for spare parts, engines, etc., one aeroplane tractor for repair shop, one petrol and oil tank tractor and two motor cycles. Each company has one seven-passenger tractor, four aeroplane tractors for towing machines and carrying seven passengers, and two motor-cycles.

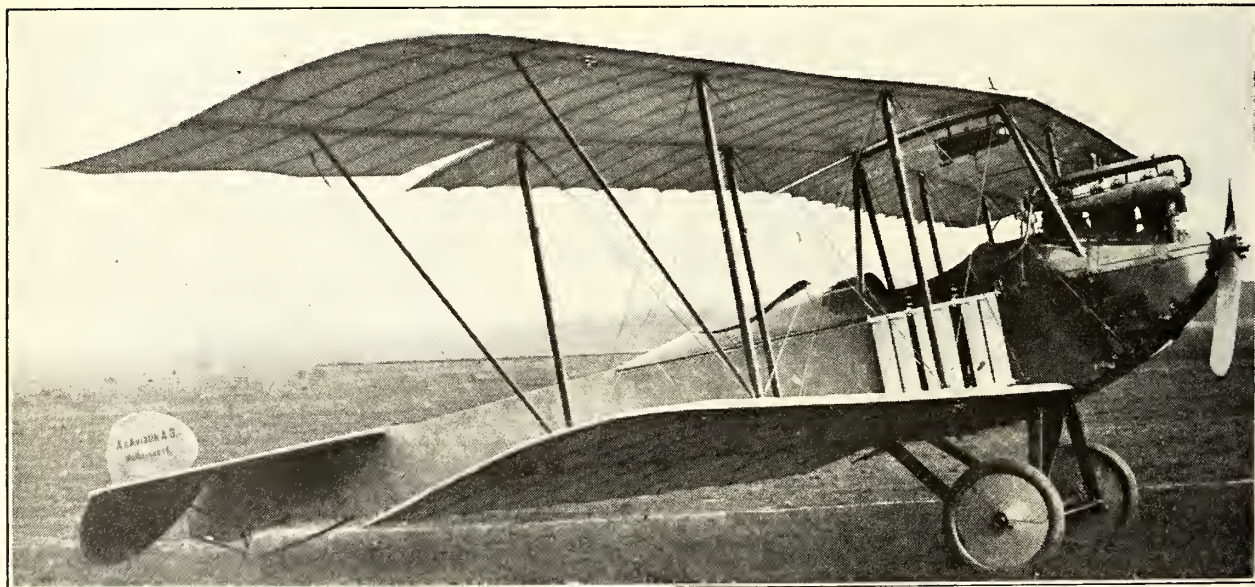
The report from which these proposals are taken is one published officially at the end of last year and written by General Scriven, commanding Signal Corps, U.S.A. The major part of the report is filled with a detailed account of the present state of the aerial forces of the U.S.

The machines at present in the possession of the flying corps either in flying condition or under repair are as follows:—

No.	Make.	Type	Motor.	H.P.	Station.	Type.
2	Curtiss	D	Curtiss ...	75	San Diego, Cal. ...	Speed Scout
3	Wright	B	Wright ...	30	San Diego, Cal. ...	Training
5	Burgess-Wright	F	Sturtevant	40	San Diego, Cal. ...	Training
6	Curtiss	D E	Curtiss ...	60	San Diego, Cal. ...	Training
8	Curtiss	E	Curtiss ...	75	Honolulu, Hawaii	Scout
9	Burgess tractor	H	Renault ...	70	Texas City, Texas	Scout
10	Wright	C	Wright ...	50	San Diego, Cal. ...	Scout
12	Wright	C	Wright ...	50	Manila, P.I. ...	Scout
14	Wright	C	Wright ...	50	Texas City, Texas	Scout
16	Wright	C	Wright ...	30	San Diego, Cal. ...	Training
17	Burgess-Wright	I	Sturtevant	60	Manila, P.I. ...	Scout
19	Wright	D	Wright ...	50	San Diego, Cal. ...	Speed Scout
20	Wright	D	Wright ...	50	San Antonio, Texas	Speed Scout
21	Curtiss tractor	—	Curtiss ...	80	Honolulu, Hawaii	Scout
22	Curtiss tractor	—	Curtiss ...	90	San Diego, Cal. ...	Scout

Aeroplanes not in use:—

1. Wright. Delivered to Smithsonian Institution.
4. Wright. Destroyed in accident.
7. Wright. Destroyed in accident.
11. Wright. Destroyed in accident.



The Aviatik biplane (100-h.p. Mercedes) on which Herr Karl Ingold flew for 16 hours 20 minutes, beating the World's Duration Record.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
 from the FARMAN BROTHERS
 for the building of
HENRY & MAURICE FARMAN

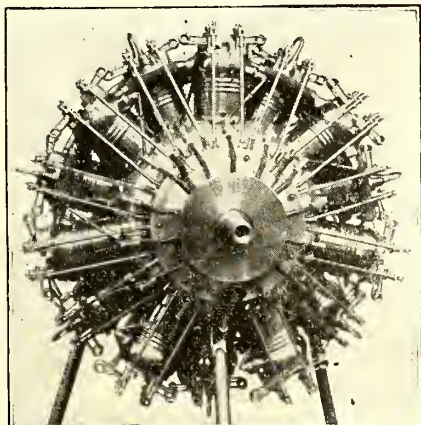
Aeroplanes AND **Hydro-Aeroplanes.**

In Great Britain and the Oversea
 Dominions.

Works and Flying Ground
HENDON.

Offices :
 47, VICTORIA STREET, S.W.

SALMSON **AERO-ENGINES** SYSTEM CANTON - UNNE.



'Phone No.:
 7 Stroud.

Tele.
 Address:
 Humpidge,
 Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

London Office:—**87, Victoria Street, S.W.**
 'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

WHITE and THOMPSON Ltd.

SOLE CONCESSIONAIRES

FOR THE

CURTISS **FLYING BOATS** and **ENGINES**

IN THE UNITED KINGDOM
 AND THE
BRITISH COLONIES

MIDDLETON, BOGNOR, SUSSEX
 Telephone—
 48 Bognor
 Telegrams—
 "Soaring," Bognor

13. Wright. Destroyed in accident.
 15. Curtiss flying-boat. Destroyed in accident.
 18. Burgess-Wright. Destroyed in accident.

It will be observed that there is not a single monoplane in the entire equipment nor are there any aeroplanes of the very latest type brought out in America. At the same time, there are many more on the list than has been supposed here.

Six more aeroplanes were on order for delivery in October, 1913. They are as follows:—Three Burgess, scout-type, Renault engines, 70-h.p.; one Wright, to new requirements, Austro-Daimler engine, 90 h.p.; one Curtiss, to new requirements, Gnome engine, 160-h.p.; one Burgess-Curtiss to new requirements, Renault engine, 100 h.p.

In addition to these eight 70-h.p. Renault engines have been purchased in Paris at a cost of £480 apiece. The three Burgess aeroplanes on order are of the tractor type fitted with these engines. An entire squadron of eight aeroplanes is to be equipped with this type with four engines as spares.

Though foreign engines have been purchased, not one single aeroplane has been purchased abroad, thus following the example of France up to the end of last year. An excellent practice, according to the dictates of political economy, much might have been learned if it had been ignored once or twice. Curiously enough the one foreign aeroplane purchased by the French Army was the Dunne biplane, and it is likely some of this same type will shortly be acquired by the American Government, if only as experiments.

Neither the Army nor the Navy possess any dirigibles, nor, in fact, has any lighter-than-air machine of even medium efficiency ever appeared in the United States.

The actual state of the equipment and personnel of the American Flying Service was as follows on September 30th, 1913:—

IN THE PHILIPPINES.

Matériel.—Two scout-type biplanes, both of which can be converted into hydro-aeroplanes at short notice. Floats and fittings are kept in the Philippines with the machine.

The Garros-Hamel Match.

The excitement in France over this match resembled the enthusiasm common in England when a football "final" is toward. Every small boy in Paris knew more about the approaching duel than did even its promoters. It was the talk of the town. The barometer was watched anxiously day by day to see what might happen. And the night before the match the finger turned in twelve hours from "Fair" to "Stormy."

On the Saturday M.M. Garros and Hamel flew their machines from Villacoublay to Juvisy. One machine had the under-surface of its wings painted black, and its fuselage was bordered in the same colour to distinguish it from the other machine, which was all white. The Aero Club de France was represented by M.M. Pierron, Zorra, and Ostheimer, whilst Mr. Harold Perrin appeared for that of England.

The first flight was made by Mr. Hamel at 3 p.m. in which he looped four or five times in a wind of about forty miles an hour. A few minutes after he landed a rain-storm swept over the ground and made flying impossible. At 3.30 p.m. the tests began. Owing to the high wind it was decided to start the competitors at intervals of one minute. M. Garros won the toss and started first in the inside berth. He flew steadily at a height of about fifty feet, taking his corners superbly, without slipping outwards at all. Mr. Hamel started practically in M. Garros's backwash, as that pilot had completed his first lap in the first minute. The two pilots had agreed to cut each test down to ten laps instead of fifteen, but, unfortunately, Mr. Hamel, mistaking a signal, stopped after the ninth lap. However, M. Garros refused to accept this as a surrender, and suggested the times should be given up to the ninth lap. These were Garros—11mins. 1 sec.; and Hamel—11mins. 18secs. Thus, the first heat fell to M. Garros. Changing machines they started for the second part of the test, Mr. Hamel, on this occasion, starting first. Throughout the speed tests Mr. Hamel flew almost touching the ground. The wind had now dropped to about ten in the second. The figures for the ten laps were: Garros, 11mins. 4secs.; Hamel, 11mins. 11secs. M. Garros, having won two tests, the third was not flown. Both pilots now rose to give

Personnel.—Four military aviators and one officer on temporary duty capable of flying alone.

IN HAWAII.

Matériel.—One tractor and one propeller biplane, both of which can also be converted into hydro-aeroplanes.

Personnel.—One military aviator.

AT SAN DIEGO, CALIFORNIA.

Matériel.—Eight aeroplanes for service or training.

Personnel.—Four military aviators, four officers capable of flying alone, and eight officers receiving instruction.

AT SAN ANTONIO, TEXAS.

Matériel.—One aeroplane. Personnel.—None.

IN TEXAS CITY, TEXAS.

Matériel.—Two aeroplanes.

Personnel.—One military aviator.

In the same report appear a number of particulars as to progress made during the past few months by the aeronautical service.

As in the case of other nations, considerable attention has been paid to wireless and its problems. Judging from the particulars given very little success has attended their efforts. It is stated with some pride that messages have been transmitted from aeroplanes to stations twelve miles away! This is but a sixth of the effective distance reached in this country on many occasions. A new set has been designed and constructed weighing 75 lbs., with a range of thirty miles. This set has been tested recently, but no data is available, and it is heavier than those used in the British service.

Photography from aeroplanes has progressed a little. Some snapshots have been taken from heights varying from 1,500 to 2,500 feet, with success.

Bomb-dropping has been tried and with the Scott bomb-dropper so successful in France two years ago, but as no American military aeroplane was capable of lifting the weights to a greater height than 300 feet, the experiments were quite valueless.

an exhibition of trick-flying. At about 1,200 feet they came towards the tribunes side by side, and just in front of the enclosures looped simultaneously, moving as though one machine. The sun had now come out, the wind had fallen, and the crowd was wild with excitement. For 20 minutes the two made loop after loop and turn after turn, each vying with the other in the eccentricity of his flying. There was nothing to choose between them, victory could not fall to either in the matter of fantastic flying. When the pilots descended they were loudly cheered by the crowd, which nearly committed suicide in its effort to reach the aviators.

Later, M.M. Garros and Hamel flew back to Villacoublay. Nothing could exceed the sportsmanlike behaviour of M. Garros and those connected with him. They did everything to ensure, not only that the Englishman should have a fair chance, but that everything should be pleasant for him.

Mr. Hucks at Birmingham.

Mr. B. C. Hucks repeated his looping at Birmingham on Wednesday last week, before a crowd which equalled that of the previous Saturday in enthusiasm, if not in numbers. Fully 6,000 paid for admission and there were quite 3,000 in the road outside. About 3 p.m. Mr. Prosser turned up on his Caudron, having flown over from Billesley Common, and spiralled steeply before landing. Mr. B. C. Hucks first took out his two-seater and went for altitude, reaching 4,000 feet. His descent demonstrated the difference between an ornamental and a purely businesslike landing. The looper was then brought out, and although never reaching more than 800 feet, Mr. Hucks made three double loops during a ten-minute flight. This brings his total of loops to 170.

A further demonstration was prevented by the oil feed to the engine becoming defective. Mr. Prosser then flew his Caudron home. Another trip in the two-seater—this time with a passenger deputising for the payer of the fee—finished the flying.

To-day (Thursday), Friday and Saturday of this week, Mr. B. C. Hucks will give demonstrations of looping the loop and upside down flying at Swimming Mead, Oxford; the flying each day will commence at 3 p.m. Mr. Hucks will take with him his two-seater Blériot for passenger carrying.

"Beautifully smooth running, thereby adding to general comfort, in addition to saving engine power."—AEROPLANE.

PALMER CORD TYRES

fitted to your car will give you greater speed, greater comfort and greater safety, with reduced petrol consumption.

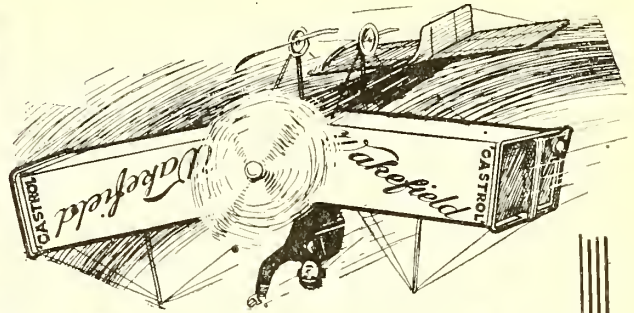
In the Palmer Cord Tyre Book you will find proof of the above. May we send you a copy?

Will you write for it to-day?

THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).



MR. B. C. HUCKS

AND

MR. G. HAMEL

lubricate their engines with

WAKEFIELD

'CASTROL'

Regd.

MOTOR OIL

FOR THEIR 'LOOPING' EXHIBITIONS.

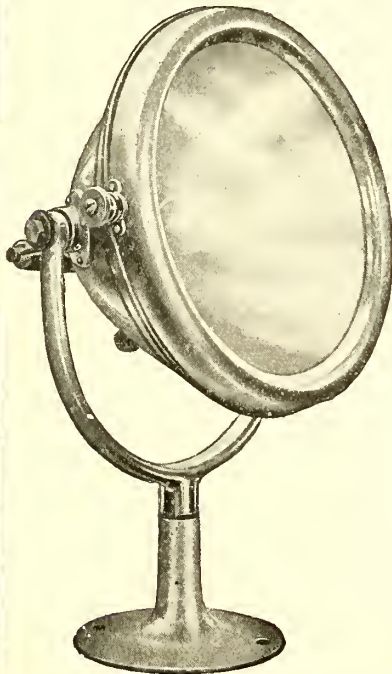
Is it possible for us to advance more convincing proof of 'Castrol' excellence?

C. C. WAKEFIELD & CO.,
Wakefield House, Cheapside, London, E.C.

C. D. C.

ELECTRIC LIGHT

FOR
WATER-
PLANES



This is part of our Standard Lighting Set, and we shall appreciate enquiries for any class of Electric Lighting for Cars, Launches or Flying Machines.

RICHARD PAPE, Ltd.,
BELVEDERE, KENT.



NOTHING BETTER

A. V. ROE & CO., LTD., MANCHESTER

EVERYTHING FOR AVIATION & AVIATOR.
"THE LATEST & THE BEST."

Booking

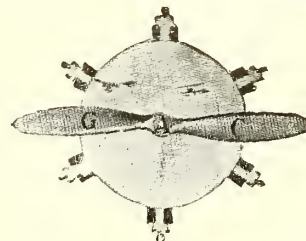
and

Office for

Exhibition

Passenger

Flights.



GENERAL AVIATION CONTRACTORS, Ltd.,
Phone: 280 Gerrard. 30, Regent St., Piccadilly, S.W.
Wire: Santochimo, London. and at Milan.
Cables: Aeros, Milan.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," February 17th, 1914:—

Lieutenant Eric Roper Curzon Nanson, Royal Naval Reserve, has been appointed a lieutenant on the supplementary list of his Majesty's fleet under the provisions of his Majesty's Order in Council of March 7th, 1913. Dated February 1st, 1914.

Admiralty appointment, February 18th:—Lieut. E. R. C. Nanson (R.N.R.) appointed lieutenant on the supplementary list, and reappointed to the "Pembroke," additional, for Isle of Grain Air Station as flying officer, to date February 1st.

Admiralty appointment, February 19th:—Sub-Lieut. (R.N.R.) J. L. Travers has been promoted to lieutenant (R.N.R.), to date February 19th.

NAVAL.

The work of erecting the sheds at Carolina Port, Dundee, is still being rushed on, and one of them was so far advanced that on Wednesday the Borel, minus its wings, which had been at anchor, was landed on bogies and taken to the shed. The strange sight of the seaplane being wheeled through the busy streets of Dundee caused quite a stir. The Maurice Farman has arrived at the base in pieces and will be assembled as soon as the second shed is ready for it. The other machine (Short No. 42) still sits in a hangar at Broomfield Aerodrome, Montrose. Commander Scarlett was to have inspected the work last week, but has not yet done so.

At Eastchurch on Monday most of the naval machines were in use, Lieut. Davies, R.N., flying a Sopwith and one of the Hewlett-Blondeau B.E.s, Eng.-Lieut. Briggs, R.N., on a Blériot (80 Gnome) and a Caudron (80 Gnome), Comdr. Samson, R.N., on a Henri Farman (80 Gnome), a Sopwith (80 Gnome), and a Short (70 Gnome). Comdr. Samson also tried one of the Hewlett-Blondeau B.E.s and which climbed amazingly. An Avro (50 Gnome), a Henri Farman (80 Gnome), Bristol (50 Gnome), and Shorts Nos. 28-34 and 65 were also out. On Tuesday a B.E., a Bristol, an Avro (50 Gnome), two Sopwiths (80 Gnomes), a Deperdussin (80 Gnome), a Blériot (80 Gnome), two Henri Farman, two Shorts, and a Maurice Farman were out during the day. Wednesday morning was wet and windy, but in the afternoon Comdr. Samson was out on Short 3, and Eng.-Lieut. Briggs on the Blériot (80 Gnome). On Thursday, owing to the weather, only a Sopwith and a Short were out. On Friday, Leading Seaman Andrews left for Dover on a Short with a passenger, but was brought down over the Swale by a broken petrol-pipe. After repair he restarted and reached Dover successfully. Suspecting the engine, he made a trial trip alone, and at Dover, on top of St. Margaret's Hill, stalled the machine and side-slipped, turning the machine over. L.S. Andrews escaped unhurt. On Saturday, Lieut. Collett, R.M.L.I., started for Portsmouth with a passenger on a Sopwith (80 Gnome), but returned after reaching Maidstone owing to stress of weather. The Blériot (80 Gnome) and two Shorts were also out.

Mr. Winston Churchill visited the London Aerodrome at Hendon on Friday, February 20th, and flew as passenger on the new Sopwith biplane (80-h.p. Gnome), piloted by Lieut. Spenser Grey, R.N. A strong wind was blowing, so only a height of 600 ft. was attained.

This new Sopwith is a tractor biplane of a type about halfway between the standard 80-h.p. military machine and the "tabloid" scout. Its speed is about 80 to 85 m.p.h., and it is intended primarily for shore patrols from the Naval Air Stations. It is fitted with dual controls and is an excellent piece of work throughout. It was flown over from Brooklands on the previous day by Lieut. Grey, who was so hampered by rain and mist that he took 2½ hours to fly from Brooklands to Hendon. He went a good deal out of his course and had to make four descents to ask his way, at Wembley, Edgware, Barnet, and again in a field on the Hertfordshire border. The machine is fitted with a Rubery Owen and Co. quick-release catch, so that the pilot can start the engine and release the machine without rustic assistance.

The First Lord of the Admiralty, who spent the week-end at Portsmouth, had another flight in a seaplane (Maurice Farman, 120-h.p. Salmson) on February 23rd, piloted by Lieut. A. M. Longmore, R.N., O.C. Calshot Air Station. Two seaplanes

flew over from Calshot early in the forenoon, and alighted near the "Enchantress." Mr. Churchill mounted one and together they flew out to Spithead, around the roadstead, and then over Whale Island, and so back to the "Enchantress." At about 11.30 a.m. they both descended, and the First Lord left for London by a mid-day train. A submarine of the D. type had previously gone out of harbour to give Mr. Churchill opportunity for observation of submarine craft.

On February 23rd at St. Margaret's Church, Westminster, Commander Neville Osborne, R.N., of the Naval Air Service, was married to Miss Betty Hamilton, who was given away by her father, Mr. V. M. Hamilton. The reception was held at the residence of Lady Hamilton, and the guard of honour included the crew of Naval Airship No. 3, the bridegroom's ship. All will wish Commander Osborne and his wife the best of everything in their married life.

MILITARY.

The following communiqués have been received:—

Royal Flying Corps (Military Wing).—Abstract of work for week ending February 13th, 1914:—

Flying Depot, S. Farnborough.—Repair and experimental work were continued as usual. There was some flying done on B.E. machines.

No. 2 Squadron, Montrose.—The officer and N.C.O. pilots were out daily during the week. On Monday, the 9th inst., 1,393 miles were flown by the squadron.

No. 3 Squadron, Netheravon.—Training was continued.

No. 4 Squadron, Netheravon.—In spite of some rough weather, a considerable amount of flying was done by the officer-pilots of the squadron. One machine was flown from Farnborough for use with the squadron.

No. 5 Squadron, S. Farnborough.—Some good practice was put in during the week and much experience gained in flying in strong winds.

No. 6 Squadron, S. Farnborough.—The formation of the squadron was continued, and some flying done on B.E. and Maurice Farman machines.

War Office, 18th February, 1914.

Royal Flying Corps (Military Wing).—Abstract of work for the week ending February 20th, 1914.

Flying Depot (S. Farnborough).—Repair, experimental work, and assistance to the Inspection Branch were continued as usual.

No. 2 Squadron (Montrose).—The week was mainly devoted to reconnaissance of the country round about Montrose, and also of warships and submarines near the Coast.

No. 3 Squadron (Netheravon).—The pilots were employed on experimental and instructional work throughout the week.

No. 4 Squadron (Netheravon).—The officer pilots of all three flights were busy flying daily. Three machines were flown from Farnborough for the use of the Squadron.

No. 5 Squadron (S. Farnborough). The officer and non-commissioned officer pilots had a considerable amount of practice on Sopwith and Avro machines.

No. 6 Squadron (S. Farnborough).—The B.E.s and M. Farman with which this Squadron is being equipped were flown frequently during the week. Several cross-country reconnaissances were made. The organisation of the Squadron is being continued. War Office, February 23rd, 1914.

A combined camp for the squadrons of the Royal Flying Corps is to be held at Netheravon during June. This is to be attended by five squadrons of the Military Wing.

The machines recently reported to be at St. Martin's Plain (Hythe) were flying on Wednesday, February 18th, but with the exception of H. Farman 295 had departed on the 21st.

One regrets to note that Major Raleigh, O.C. No. 4 Squadron, R.F.C., Military Wing, is laid up as the result of a severe accident on the Cresta run at Davos recently; also that Captain Reynolds, of No. 4 Squadron, is in St. George's Hospital with a broken leg as the result of being run over by a taxicab. Apparently our aviators are safer in the air.

The Montrose Aerodrome suffered from a spell of hard weather last week, for when it was not blowing a gale, it was freezing hard. A 40-mile wind prevented flying on Monday.

ACCLES & POLLOCK, LIMITED

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**

OLDBURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST.

GODDARD'S MOTOR, MOTOR-CYCLE, and CYCLECAR HOUSES.



ft.	ft.	ft.	high	...	...	£	s.	d.
9	6	7	3	high	...	4	5	0
10	7	7	3	"	...	5	7	6
12	8	8	3	"	...	7	0	0
14	8	8	3	"	...	8	5	0

Carriage Paid.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned $\frac{3}{4}$ in. T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing. Large Illustrated Catalogue with prices of other houses, post free. Makers of Portable Wooden Buildings of all descriptions.

Our Prices are all Carriage Paid.

GODDARD'S, Ltd., Crown Works, Vicarage Lane, Ilford, Essex.
Telephone: 880 Ilford.

For EFFICIENCY and RELIABILITY in AERO-RADIATORS

SEND YOUR ENQUIRIES TO
THE MOTOR RADIATOR MFG. CO.,
GREET, BIRMINGHAM.

Telegrams: NERLEAK, BIRMINGHAM. Telephone: 455 VICTORIA, B'HAM.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts
should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

CRITCHETT WELDING & ENGINEERING CO., WELDING & BRAZING .. SPECIALISTS ..

Aluminium Welding Guaranteed.

Wire, Write or Phone

Tele. Address: Flexicablo, Watloo, London. Phone: 2424 City.

Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.

C. G. SPENCER & SONS. HIGHBURY GROVE, LONDON, N.

Manufacturers of

Aeroplanes, Airships, Balloons, and

Aeronautical Apparatus of every description,

Fabric, Propellers and Accessories.

Write for List.

Telegrams: "AERONAUT, LONDON."

Telephone: DALSTON 1893.

DOPE WITH NOVAVIA

9, Coral Street, W.C.

THE DOPE

The Funniest Book on Aviation.

"Lighter than Air" OR THE AVIATORS GUYED

Of all Booksellers or direct from "The Aeroplane,"
166, Piccadilly. Post free 1s. 2d.

but the officers covered a considerable distance on Tuesday. Lt Lawrence, B.E. 226, with Lt Dawes as passenger, flew to St. Andrews and descended there with engine trouble. Lt Empson (B.E. 233) took A.M. Attrell to Aberdeen and Lt Corballis (B.E. 232) took A.M. Jenkins over Rosyth Naval Base, visiting Coupar Angus and Dundee on the return. Lts Harvey, Martyn, Rodwell, Lewis, and Harvey-Kelly were engaged in local reconnaissance flights.

The same officers were out next day in spite of a gusty wind, and Capt Dawes was out in the afternoon instructing N.C.O.'s in Maurice Farman 215. Flying started early on Thursday, Capt Dawes giving instructional flights to Srgts Smith and Bougher. Lt Lawrence took Maj Burke in B.E. 226 to Dysart Aerodrome, and Lts Corballis, Dawes, Empson, and Lewis flew B.E. machines on local reconnaissance flights. Lt Lewis started from Dysart in B.E. 217, but hit a wall, breaking his legs and smashing the machine. Later Capt Dawes went to St. Andrews to teach Srgts Smith and Bougher.

On Friday morning Srgt Smith came down too steeply and landed in the sea, the engine falling through the bottom plane. Lt Corballis on B.E. 232 paid a visit to St. Andrews, and Lt Dawes on B.E. 267 with A.M. Dangerfield as passenger flew to Dunbar and visited Berwick. Maj Burke, O.C., Capt Todd, Lts Lawrence, Harvey, and Rodwell, and Srgt-Maj Measures and Srgt Mead made local flights. An officer of the Scottish Rifles was carried as passenger in one flight. A gale on Saturday prevented any flying being done.

The accident to Lieut. Lewis at Montrose on February 19th was apparently due to the machine, B.E. 217, being old, and therefore lifting sluggishly, with the result that in getting off the ground the machine fouled a wall, and naturally came down in a heap. This accident emphasises the fact to which Colonel Sykes drew attention in his lecture the other day, that warping wings should be abolished in favour of rigid box-wings with stabilising flaps—or, one may add, with a warping trailing edge. The B.E. wing construction, especially the particular form in which no rigid stretcher ribs are used between the spars, is particularly apt to lose lifting power after being in use for a comparatively short while, and the continual warping necessary on the B.E. accelerates the loss of shape in the wing. A B.E. wing was warped mechanically at the Royal Aircraft Factory something like 1,000,000 times without breaking—but it was not under load.

Any warping wing machine becomes 25 per cent. less efficient in lifting useful load after a couple of months' regular work, and there are very few B.E.s which, after a month's hard use, will touch 70 m.p.h. with full load. Against this, one may set such a machine, for example, as the 80-h.p. Short biplane which was produced some time last summer, was flown hard to, through, and from the Army manœuvres by Asst.-Paymaster Parker, R.N., and has been the regular mount of Commander Samson, Commandant Naval Flying School, Eastchurch. The writer saw this machine out one day last week in quite a nasty wind, and it was evident from the way in which the machine shot off the ground, and the way in which it manœuvred afterwards, that it was in every way up to the top of its form, and he was assured that not a single wire, except the control wires, in the machine had been replaced or tightened since she went out on manœuvres.

When one considers that B.E. 217 is one of the oldest belonging to the R.F.C., was one of those to fly from Farnborough to Montrose over a year ago, was engaged in manœuvres in Ayrshire and Ireland, and has been in constant use practically all that time, it is not surprising that it was sluggish in rising. Our correspondent saw it fly some days prior to the accident and was not impressed by its behaviour. One learns the machine showed very evident signs of its long use, and that under its fuselage behind the exhaust-pipes it was caked with oily soot.

The pilot got off rather lightly, only his right leg being broken and his head bruised. If there had been a passenger in the machine he would almost certainly have been killed, as the engine was telescoped into the seat, and only the safety belt saved the pilot from very serious injury. The ambulance officer was soon on the scene and rendered first aid, but it was an hour before the squadron motor-ambulance appeared. On Saturday Mr. Lewis was reported to be progressing favourably.

Squadron 2 justly prides itself on being the most active unit of the R.F.C., but this accident, together with that to the Maurice Farman at St. Andrews on the following day, further depletes the number of machines available.

FRANCE.

The airship Clément-Bayard VI, rechristened "Eugène Montgolfier," is being bought by the French army. She made her first flight under her new name on Monday, February 16th, flying from Lamotte-Breuil to Paris and back in a thick fog and a gusty wind, piloted by Lieut. Leroy. She is provided with lifting propellers, to which is ascribed the ease with which she was landed under difficult conditions. Does Mr. Willows profit thereby?

The military airship "Montgolfier" left Lamotte-Breuil at 9.30 a.m. on the 20th and arrived at her shed at Maubeuge at 11.15, representing a speed of 75 km.p.h. (48 m.p.h.). She had on board Comdt. Labadie, the head of the aerostation department at Chalais-Meudon, and seven other officers.

On Saturday, February 21st, 15 Blériot tandem two-seaters were put through their reception tests for the French army at Buc, piloted by MM. Deroye, Bidot, and Cuennet. These machines are allotted to the escadrilles at Epinal, Belfort, Dijon, and Avor.

At Avor, Adjutant Guidon and Quartermasters Nantet and Houssemand finished their test for their "brevet militaire" by flying from Avor to Etampes and back in a high wind.

Lieut. Janvier has been flying well on a Voisin seaplane from the mother-ship "Foudre" at Marseilles.

On the 19th M. Emile Védérines flew from Reims to Paris in 55 mins. on a "cavaïry" type Ponnier monoplane (60-h.p. Le Rhone motor). Starting from Reims at 3.15 p.m., he arrived at Issy-les-Moulineaux at 4.10, maintaining an altitude of 8,000 ft. during the journey. For some strange reason he planed down to 600 ft. when in sight of Paris and flew over the city at that low altitude. On his arrival at the aerodrome M. Védérines was rebuked by the officier in charge of the air service there for his eccentric flying. Later he left for Villacoublay, where he alighted safely.

Next day he made an exhibition climb at Reims in the presence of the military officers stationed there, when he was reported to have reached a height of 1,600 metres in 3 mins., or about 1,700 ft. per minute!

The municipality of Dijon has been officially advised that a military air station is to be established there. The aerodrome will be installed four or five kilometres from the city.

The airship "Adjudant-Vincenot," under command of Captain Joux and with eleven officers on board, left her hangar at Issy on the 18th at 1.35 p.m., and after cruising in the neighbourhood of La Motte-Breuil, returned to her shed at 5.30 p.m., crossing Paris at a low altitude.

Lieut. Brehier, of the aviation centre at Pau, flew to Tarbes on February 19th on his Blériot, crossing the valley of Adour in a thick fog and landing at Bagnères-de-Bigorre, at the foot of the Pyrenees.

M. Guerre continued at Buc, on February 19th, to test his "fiery arrows," intended to destroy airships, dropping them with success from 650 feet. A number of military officers witnessed the tests.

The creation was announced on February 18th of two new posts under the Ministry of War, those of an Inspector of Aviation and of an Inspector of Aerostation. These seem to indicate that the premises of reform made by M. Noulens in his reply to the criticisms by M. Raymond in the Senate may be kept, if the present Ministry lives long enough.

GERMANY.

Count Zeppelin has visited the new Zeppelin docks at Potsdam, which will be ready for work by May. He is remaining there for some time to put "Z. 7" through her acceptance tests. The first such journey from Potsdam, with the military commission on board, was made on February 17th, the Count manœuvring over the capital and surroundings for an hour and a half before returning to Potsdam.

The Prussian War Ministry has granted 20,000 marks (£1,000) towards the Prince Henry flight, and the Minister will also give a prize. The Bavarian War Office will follow the example of its Prussian colleagues.

All intended air stations where soldiers are garrisoned, but

which have no airship sheds at present, are to have them in the current year. A new type is to take the place of the revolving sheds, capable of housing two airships. The new type combines a revolving shed with a fixed one, the moving parts permitting entrance and exit for the vessels which will be housed in the fixed hall. These hangars are intended for Darmstadt, Dresden, Duesseldorf, Friedrichshafen, Graudenz, Hanover, Lahr, Mannheim and Schneidemühl.

Count August von Pismarck, the young grandson and heir of the great German Chancellor, who is an enthusiastic aviator, had an accident in Schwerin whilst exhibiting his Fokker monoplane to the Grand Duke. He side-slipped, just missing his Royal Highness in his fall. Although the machine was badly damaged, the pilot escaped with a few bruises.

The many fatal accidents at Johannisthal have resulted in the Inspector-General of the Military Traffic Department forbidding all officers from flying there until proper measures have been taken. The question was raised in the German Diet, too, and a military commission inspected the ground. The accidents for which Johannisthal has gained so unenviable a reputation may nearly all be traced to lack of attention to the aerial traffic laws by the pilots themselves. Major von Tschudi, director of the ground, demands more power to act in certain cases, where aviators disregard others and heed but their own requirements. The plans of the ground were found entirely in order, and the following scheme was suggested: Besides the two present general observers, there will be an expert track manager, who is to be given powers by the German Aeronautical Association to control all flights and convey his orders to the general observers, who will supervise the number of starters and prevent overcrowding. Every aviator transgressing the ground regulations will be warned and punished by suspension should he not follow instructions.

A wireless station, principally intended for aeronautics, has been erected at Friedrichshafen by the Zeppelin Works, with the assistance of the Government. Its radius of action is 700 kms.—B.

AUSTRIA.

The Austrian Minister of War is reorganising the military aviation corps. The air service has been formed into a battalion of four companies, under the command of a staff-officer. There are 24 machines in commission, and the companies are stationed at Vienna, Cracow, Sarajevo and Gaerz.

ITALY.

Naval Lieut. Francis Roberti, flying at Venice on 14th inst., had to come down as quickly as possible owing to fire in the carburettor, damaging the whole machine badly, as the floats collapsed on taking the water. He himself, after jumping out of the machine, was saved by a service boat and has no serious injuries.

Properties and effects from Pordenone, recently closed, are arriving at Malpensa.

Want of sufficient funds to continue the programme laid down for the furtherance of adequate aerial defence is pleaded by the authorities. As other nations know, experimenting with big dirigibles cannot be done cheaply. According to the programme, something should be heard of the first "G," a fast 40,000 cubic metre ship with over a thousand horse-power, this year. As usual, Captain Crocco is entrusted with a large share in the designing of the series.

H.R.H. Princess Letizia presented medals offered by the S.I.T. Co., of Turin, to Major Piazza, Lieut. Suglia, and Sergeant Brack-Papa on the 15th inst.—T. S. H.

SWEDEN.

Captain Sundstedt has now taken over the So-h.p. Gnome-Henry Farman waterplane which a friend presented to him, as will be remembered. With this machine, named the "Swan," he intends to make the flight Paris-London-Paris, and later he will enter for the flight from Warnemuende via Copenhagen to Christiania. Either Engineer Ask or Dr. Thulin will also start in the Northern sea-flight, probably on a Blériot waterplane. Baron Cederström, the well-known Blériot pioneer aviator, is now at Buc also practising on a Henry Farman biplane, which he has bought as director of the Scania-Vabis aircraft factory.

During the peasants' demonstration procession for stronger defences, both the army and the naval flying officers made some fine flights over Stockholm.—Hr.

TURKEY.

Fethi Bey arrived at Beyrouth with his passenger on the 17th on his way from Constantinople to Cairo, where the population manifested a grand enthusiasm.

Fethi Bey and his passenger, en route to Alexandria via Jerusalem, met with a misadventure between Beyrouth and Damascus, and were delayed till a propeller could be replaced. Nouri Bey safely crossed the Taurus Mountains on Feb. 19th.

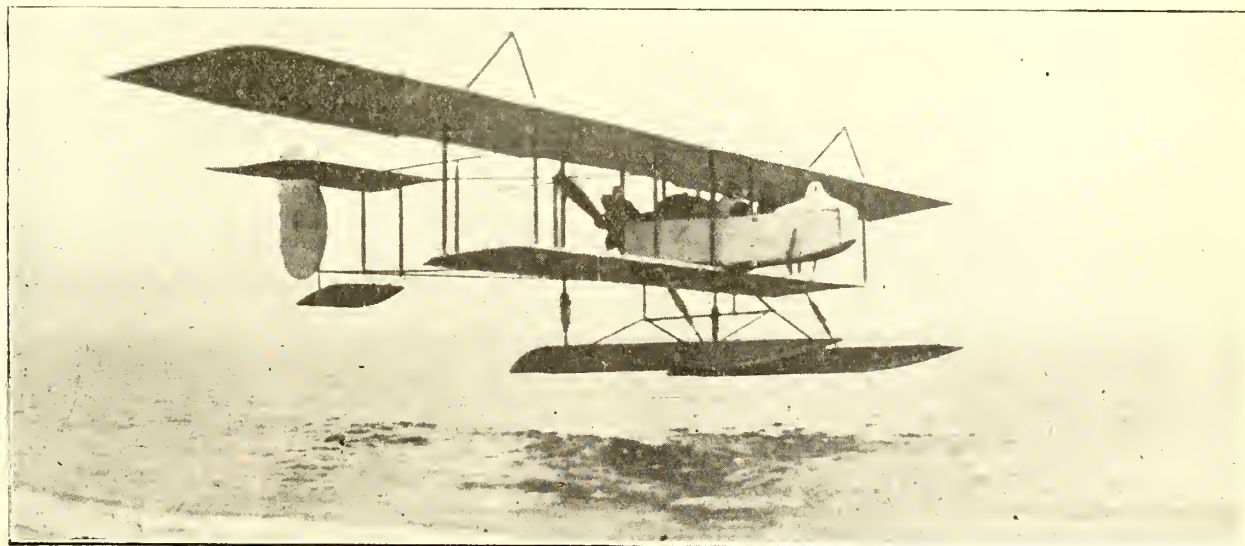
CHINA.

It is reported that an "all-Chinese" biplane (excepting the motor) has been constructed at Nanyuan. The machine is ready to undergo its tests prior to being accepted by the General Staff.

Art Lym, a Chinese journalist who learned to fly in America, has been appointed aviation instructor to the Chinese army at the instance of the President of China.

U. S. A.

The machine on which Lieut. Post, of the U.S. army, was killed at San Diego, California, on the 9th was a Wright seaplane, which collapsed while descending in a spiral at 600 ft.



M. Fischer, with Petty Officer Henry, R.N., testing a new Henry Farman seaplane (Gnome engine) at Yarmouth.

Lieut. Murray, of the United States navy, was killed on February 10th while flying at Pensacola, Florida. The aeroplane fell from a height of 800 ft. into the bay. The obsolete types of machines used, their archaic construction, and the disgracefully inadequate way in which they are cared for will, doubtless, result in the deaths of all U.S. Service aviators within a year or so, unless a radical change is made.

An Explanation.

A distinguished Russian General Officer has, somewhat naturally, taken strong exception to recent statements in this paper as to the necessity for direct bribery when endeavouring to sell aircraft to foreign Powers, and especially to his country. This officer does us the honour of pointing out that as this paper is widely read among the officers of the air services of all countries, such statements are likely to cause ill-feeling in any country, and that in particular they cast aspersions on the honour of Russian officers both of the Army and Navy. Perhaps, therefore, it may be well to explain.

Naturally, nothing could be further from the writer's intention than to give any false impression as to the honour or honesty of the active service officers of the Russian Empire, and undoubtedly the officer in question is as bitterly opposed to the system of bribery as any officer in the British Service could be. The reference, however, was not to officers of the fighting arms, but to the officials, high and low, with whom it is, unfortunately, necessary to deal before one can come into touch with either the young officers who do the flying, or with the distinguished soldiers and sailors of higher rank who control the aeronautical services.

It may be that in certain instances such officials are themselves commissioned officers of the army or navy as the case may be, but they are not of the same class as the men who do the real work in the field, just as certain commissioned officers concerned in our own commissariat, forage, and remount scandals in South Africa and since, were not of the British military families. The difference, however, is that in most foreign countries there is considerably more officialdom than there is in this country and the seller of matériel is not brought so immediately in contact with the genuine soldier.

The honour of the genuine military aristocracy in all nations is above reproach; the trouble is that the supply of matériel to the services in all countries is too frequently in the hands of men who are not of the same caste.

The Royal Aero Club.

The annual general meeting of the members of the Royal Aero Club of the United Kingdom will be held on Tuesday, March 24, 1914, at 4 o'clock, at 166, Piccadilly, London, W.

In accordance with the rules, the Committee shall consist of eighteen members. Members are elected to serve for two years, half the Committee retiring annually. Retiring members are eligible for re-election. Col. J. E. Capper, C.B., R.E., does not offer himself for re-election.

The following members have been so far been nominated:—G. B. Cockburn; Major J. D. B. Fulton, C.B., R.F.A.; Robert Lorraine; Fred May; Com. C. R. Samson, R.N.; A. Mortimer Singer; T. O. M. Sopwith; the Marquess of Tullibardine, M.V.O., D.S.O., M.P.

Any two members of the club can nominate a member to serve on the Committee, having previously obtained such member's consent. The name of such member so nominated, with the names of his proposer and seconder, must be sent to the Secretary in writing not less than fourteen days before the annual general meeting. Wednesday, March 11th, 1914, is the last day for the receipt of nominations.

At the meeting of the Committee on the 17th, the following Aviators' Certificates were granted:—732, Filip Augustin Björklund (Swedish Subject) (Grahame-White biplane, Grahame-White School, Hendon), Feb. 3rd, 1914; 733, Lieut. Francis Hesketh Pritchard, R.G.A. (Vickers biplane, Vickers School, Brooklands), Feb. 10th, 1914; 734, Capt. Arthur Burdett Burdett (Blériot monoplane, Blériot School, Hendon), Feb. 10th, 1914; 735, Lieut. Dudley Stuart Kays Crosbie (Vickers biplane, Vickers School, Brooklands), Feb. 16th, 1914; 736, Lieut. Frank Burges Binney (Bristol biplane, Bristol School, Brooklands), Feb. 16th, 1914; 737, Richard Patrick Creagh (Vickers biplane, Vickers School, Brooklands), Feb. 16th, 1914.

The following Certificate was passed in France:—B. D. Ash (Maurice Farman biplane, Etampes), Jan. 24th, 1914.

The following Aeronaut's Certificate was granted:—39, Capt. L. L. Atherton

The following Airship Pilot's Certificate was granted:—24, Capt. L. L. Atherton.

The R.Ae.C. Dinner Postponed.

Owing to Mr. Winston Churchill, the guest of the evening, having been commanded by the King to Buckingham Palace on February 27th it has been found necessary to postpone the annual dinner of the Royal Aero Club till Wednesday next, March 4th, at 8 p.m. As the Royal Automobile Club is not available on this date, arrangements have been made to hold the dinner at the Savoy Hotel. Incidentally, the new room at the Savoy is bigger than that at the R.A.C., so that it will be possible to accommodate more people.

An Aviation Benevolent Fund.

It has been unanimously resolved by the Committee of the Royal Aero Club to establish an Aviation Benevolent Fund, the object being to relieve aviators, their wives, widows, and dependents when in necessitous circumstances. Full details of the scheme will be issued shortly. It was unanimously resolved to vote a sum of Fifty Guineas as the Club's first donation to the Fund. It was reported that the British Petroleum Company, Limited (the Distributors of Shell Motor Spirit) had kindly promised a donation of Fifty Guineas.

The Slack Fund.

The following subscriptions have been received in connection with the above fund:—Already acknowledged, £94 6s. 6d.; Dr. A. B. Leakey, £1 1s.; Mrs. Wallace Stroud, £2; M. Desoutter, £1 1s.; Glasgow I.C.S. staff, per W. Kerr £1 10s.; S. Pickles, £2 2s.; Victor Lapeyre, £1; H. S. Brough, 5s.; L. G. 55095, 2s. 6d.; C. J. Sabiston, £1 1s.; E. E. Clarke, 10s. 6d.; A. D. Frampton, 10s. 6d.; R. W. Fryer, 10s. 6d.; F. W. Moore, 10s. 6d.; R. D. Scoular, 10s. 6d.; Anonymous, 1s.; The Sergeants' Mess, R.F.C., Netheravon, per Sergeant-Major Levick, £2 3s. Total, £109 4s. 6d.

The Cody Biplane in London.

The last existing Cody biplane, that on which the Military Aeroplane Competition of 1912 was won, was last week being erected at the Science Museum at South Kensington, to which institution it has been presented by the War Office. All will agree that no fitter place could be found for the famous pioneer's work, which will be of intense interest to future generations.

To Increase Safety.

Presumably everyone will agree that the more aeroplane constructors and those concerned with the design of aeroplanes know about aeroplane accidents of all kinds the sooner we shall arrive at absolutely safe machines. One, therefore, ventures to suggest that it would be very much to the advantage of everyone concerned with aviation if the Military and Naval authorities would publish the actual or possible causes of any accident of any importance which occurs to Service machines.

At various times seaplanes have been seriously damaged in apparently trivial accidents, and although the pilots have not been injured, the causes of these accidents, if published, would suggest improvements in future machines of similar type, whether built by the same maker or by other makers, and in like manner accidents, serious or otherwise, have occurred to military aviators, which, if their causes were made known, would very possibly prevent similar accidents occurring.

It hardly seems likely that the publication of such particulars would in any way disclose official secrets, or even matters which it is particularly desirable to keep from public notice, whereas if the publication of facts resulted in the saving of life or limb, even of civilian aviators, the work done in collating and issuing the facts would, to the minds of most people, be justified.

Brighton-Shoreham

The Cedric Lee circular monoplane was out being tested by Mr. Gordon England on Tuesday, and broke a wheel in landing. The periphery of the plane made an excellent skid.

On Tuesday, Lt. Shackleton, R.F.C., arrived from Folkestone on a Henry Farman and left after lunch for Winchester. On Friday, Mr. Wingfield Smith, with passenger, came from Folkestone on the R.A.F.'s F.E.2, and after a short stay left for Chichester. To the onlookers the machine appeared to climb very sluggishly and went away very low. Owing to weather, work was mostly confined to the sheds.

The Supplementary Estimate.

By the time this issue of *THE AEROPLANE* appears, the Secretary of State for War will have introduced a supplementary estimate, as indicated by the following paragraph from the "Times" of the 21st inst. :—

"A Parliamentary paper (100) issued yesterday shows that a further sum, estimated at £296,000, will be required during the year ending March 31st next to meet expenditure not provided for in the original Army Estimates of the year for aviation and for the additional Indian troops temporarily employed in China. A sum of £100,000 excess appropriations in aid is deducted, so that the net supplementary estimate is £196,000.

"Accelerated progress with the aviation services is responsible for a further sum of £251,000, of which £216,000 is required for 'aviation,' and £35,000 for 'mechanical transport vehicles.'"

Writing in this paper on March 6th, 1913, Mr. Whittaker showed clearly that the schemes then under consideration required about £900,000, whereas only £501,000 was demanded. The actual excess expenditure shown above (£251,000) brings the actual cost of military aviation to £752,000, so it is now proved that, as Mr. Whittaker remarked on March 27th, 1913, Colonel Seely showed either lack of courage or lack of intelligence.

The total estimated, £501,000, for Military Aeronautics, after making all deductions for pay or so forth, left £190,000 for stores and materials, which included all material for the Royal Aircraft Factory's experiments, but not the wages of that institution. Experiments were then going on with dirigibles as well as aeroplanes. This sum also had to include all the stores for the various squadrons of the Royal Flying Corps, so that at the most liberal estimate there cannot have been more than £90,000 left for the purchase of aeroplanes. This would mean at the most 100 machines, which, in view of the fact that at the time there were not 20 effective aeroplanes ready for war in the possession of the squadrons of the Royal Flying Corps, was obviously an utterly inadequate sum.

Colonel Seely in answer to a recent question in Parliament, said that there are now 957 men at work at the Royal Aircraft Factory. He also said that 24 aeroplanes of a "special type" were on order from that establishment. These we know to be the new "R.E.'s" of 120 h.p. One would like to know how it is possible to employ 957 men in the production of 24 aeroplanes of one or two types, and the number indicates the intention to manufacture largely in direct competition with the aeroplane industry. The utter lack of intelligence of those who composed the original estimates is shown in the fact that £40,300 is set down as the wages bill of the Royal Aircraft Factory for the year. With 957 men on the pay roll, the wages bill, even at the low rate of wages paid by the Royal Aircraft Factory must exceed £1,500 per week, so that the total amount of wages for the year would be nearer £80,000 than £40,000.

We are being continually informed that the Royal Aircraft Factory is not intended to compete with the private constructor, but is merely an experimenting establishment. If that be so, how can the presence of nearly a thousand workmen be justified, more especially as experimental work on dirigibles, which comes legitimately within the sphere of the Royal Aircraft Factory, has now become the work of the Navy? Incidentally, one would like to know the total amount charged by the Royal Aircraft Factory to the Navy during the current financial year for work done. As the Royal Aircraft Factory is primarily under the War Office, presumably all its work comes within the scope of these supplementary estimates. One would, therefore, like to inquire what has become of the 100-h.p. British Aero engine (a 6-cylinder Green), which it was intended should be fitted by the Royal Aircraft Factory into a reconstructed seaplane belonging to the Navy.

One hears that motor manufacturers who have had dealings with the Royal Aircraft Factory are as dissatisfied with their treatment there as aeroplane manufacturers have been. The same brain-picking process is going on. The R.A.F. is experimenting with engines of its own design which no doubt

it hopes to standardise as it has standardised the B.E. biplane, though in attempting to produce these engines the most idiotic mistakes have been made. Therefore, one appreciates the more Mr. Massac Buist's advice to his friends the motor manufacturers. Says he: "When to these circumstances one adds the fact that the buying department is to-day something absolutely dissociated from the Royal Aircraft Factory, it becomes abundantly clear that one's best service to the motor industry is to advise it utterly to ignore the existence of that establishment or anybody concerned with it, and not to go near it on any occasion whatever, but instead to deal only and always direct with the Department of Military Aeronautics."

Further, one finds that orders are being placed for large numbers of B.E. machines even now when vastly more reliable machines designed by private constructors are ordered perhaps only half a dozen at a time. There seems to be no adequate reason why, when the design of a private constructor proves itself to be better than the official design, and when that constructor's factory is not sufficiently large to enable him to turn out such machines in the quantities desired, he should not supply the details of his design to the Department of Military Aeronautics so that similar machines could be ordered from firms, say, such as the Coventry Ordnance Co., who merely build to official designs, and are not producing original machines, the original designer receiving an adequate royalty for every machine built to his design by another firm. The Royal Aircraft Factory, too, could employ some of its thousand men on turning out machines to these improved designs.

One quite sympathises with the efforts of the Army to standardise its aeroplanes, but one ventures to suggest that while all the aeroplanes in the world are in such an undeveloped state as they are at present, we may do very great harm to the Service by attempting to standardise to the extent which we have done. Undoubtedly every machine in each "flight" of four aeroplanes should be identical, and it is desirable that every machine in a squadron should in some cases be identical, though while our Military flying corps remains as small as it is, it seems advisable that the three flights of each squadron should consist respectively of very fast machines, moderately fast machines, and comparatively slow armed aeroplanes. In time, doubtless, we may have complete squadrons of very fast machines, and of the others. But at the present time we are so far from finality, or, one should say, so very close to the beginning of aeroplane design, that every possible promising type should be fairly tested, and this can only be done by actually buying any reliable machine that is approved by the officers of the Royal Flying Corps themselves, and trying it under as nearly as possible Service conditions. The new Inspections Department may be relied upon to decide whether certain machines fancied by the officer-pilots of the Royal Flying Corps are fit to fly or not, and this being so, it is distinctly detrimental to progress that aeroplanes designed by the Government's own factory should be given preference simply because they have been designed by that establishment.

One hopes that these points may be brought out clearly in the debate on Colonel Seely's Supplementary Estimate, which would never have been necessary if his aeronautical advisers had been competent men.

Questions in the House.

Oral Answers. 17 February, 1914.

ORDNANCE FACTORIES (MEN EMPLOYED).

25. Mr. Tysoa Wilson asked how many men are at present employed in the Ordnance Factories, Woolwich, and at the Royal Aircraft Factory, Farnborough?

Colonel Seely: The numbers employed are:—Ordnance Factories, 9,546; Royal Aircraft Factory, 957.

Written Answers. 17 February, 1914.

DIRIGIBLE AIRSHIPS.

Mr. Fell asked the First Lord of the Admiralty how many dirigible airships the Government now has; how many are under construction by the Government and how many by contractors; and if he anticipates that any of these dirigibles will be capable of accompanying the fleets and manœuvring with them this next summer?

Mr. Churchill: There are fifteen dirigible airships built, building, or ordered at the present time for the Naval Wing. The majority will be ready for service with the fleets when required during the next year. I should prefer not to be more precise.

Oral Answers. 18 February, 1914.

AIRSHIPS.

17. Mr. Joynson-Hicks asked the Secretary of State for War how many of the monoplanes which were on the list of efficient machines in July last are now included in the War Office lists as efficient, and when were the others removed from such list?

The Secretary of State for War (Colonel Seely): Twenty-eight have been struck off at various dates since the 1st July. One remains on the list as efficient.

18. Mr. Joynson-Hicks asked when the decision was arrived at to transfer the airships from the Army to the Navy; and whether such transfer met with the approval of the Army Council and the officers of the Flying Corps?

Colonel Seely: The decision of the Army Council referred to was taken in November last and all the considerations in-

involved were, of course, reviewed before the orders were given.

19. Mr. Joynson-Hicks asked what arrangements have been made regarding the future of those Army officers who were engaged in the airship squadron of the Royal Flying Corps?

Colonel Seely: All the officers referred to except one have agreed to be transferred to the Naval Wing. The exact conditions of their employment are still under consideration, but the hon. Member may rest assured that they will not lose either in seniority, rank or grading.

Mr. Joynson-Hicks: Is there any chance of a Supplementary Estimate being put down in order that we may discuss the policy of this important change?

Colonel Seely: I think there will be an early opportunity of discussing the whole matter.

20. Mr. Joynson-Hicks asked the Secretary of State for War, whether he still adheres to his oft-expressed view that the Royal Aircraft Factory is to be used for experimental purposes only; and how many aeroplanes are now being manufactured there?

Colonel Seely: The Royal Aircraft Factory is now making 24 aeroplanes of a special type.

The Rules for the Monaco "Rallye."

M. Georges Prade, the moving spirit of this year's Monaco meeting, which is called a "Rallye," explains that the central idea is to give manufacturers an opportunity of competing with machines which already really exist, instead of inventing conditions which would necessitate building special machines which, when they were ready to compete, would probably have cost more than the value of the prizes.

This year, instead of building sheds for the machines on the quay of the Port of Monaco, the machines will be housed in a harbour specially arranged for them at Fonvieille, on the other side of the Rock of Monaco. There is already an athletic training ground there, and this has lately been extended by land which has been reclaimed from the sea, so that there will be space enough to build the sheds, six of which are already under construction. There is already a tiny harbour with a little pier, so that machines once inside the shelter will be easily run up an inclined plane to the sheds.

The following are the chief rules in connection with the competitions which are organised by the International Sporting Club of Monaco:—

The official starting places are Paris, London, Brussels, Madrid, Gotha, Vienna, and Milan. From these courses have been arranged which work out exactly to 1,083 kms. over land with two intermediate compulsory landings, and 210 kms. over water with two intermediate compulsory alightings. The first five land courses end at Marseilles. From Paris to Marseilles the official course is Buc, Angers, Bordeaux to Marseilles. From London the course is Calais, Dijon, Marseilles. From Brussels it is via Calais and Dijon to Marseilles. From Gotha it is via Frankfurt and Dijon to Marseilles. And from Madrid it is via Vittoria and Bordeaux to Marseilles.

From Marseilles the competitors coming from all these points will fly to Monaco with a compulsory stop at Tamaris, in the Bay of Toulon, and will do a supplementary flight of 20 kms. over the Bay of Monaco, the total distance over sea being thus brought to 210 kms. On the other side competitors from Milan will travel via Padua and Rome to Genoa, those from Vienna flying via Buda Pesth and Padua to Genoa, and the over-sea flight will be from Genoa to Antibes and Monaco. Compulsory landings will take place at the towns named on each route.

Competitors may start when they like between April 1st and midday on April 14th, and they will be timed at the various stopping places. Any competitor arriving at Marseilles or at Genoa after 8 p.m. will be timed as having arrived next day at 6 a.m., this rule being to avoid night flying.

Competitors can either use a machine with an amphibian chassis, or they can change the whole chassis of the machine at Marseilles or Genoa, or they can fly the over-sea section on a different machine of the same make, and in this case the type of machine, so long as it is of the same make may be different. They will be allowed 24 hours' rest at the end of the land course if they use a different machine altogether, and 48 if the machine has to be altered, and there will be no flying

time saved by making a shorter stop. The starting times at Marseilles and Genoa will be between 8 a.m. and 3.30 p.m.

At the compulsory landing places competitors are permitted simply to land, drop a control badge, and go on again without stopping; and at these places will be two white lines 10 metres apart across which competitors must roll.

The prizes are as follows:—

To the machine doing the fastest time over any course, 25,000 francs (£1,000). To the machine doing fastest time over any course with more than 25 sq. metres (250 sq. ft.) of surface, £400. To the second best time over any course, £200. And for the best time over each of the seven courses seven prizes of £200 each. Thus the winner must get £1,200, and may get £1,600 if his machine has over 250 sq. ft.

The Committee undertakes the cost of returning by goods train all machines completing one of the courses, or will send them to a corresponding distance in any other direction.

It is also apparently open to competitors to fly against time over any of these itineraries in the opposite direction, if it seems good for them to do so, though here the rule is possibly a trifle obscure, as one fails to see what advantage there would be to Monaco if all the competitors arrived by rail only to leave as soon as possible afterwards. The rule also seems to indicate that if a competitor is not satisfied with his flight to Monaco, he is quite open to cancel it and fly back again.

One regrets to find that the rules for the Monaco meeting this year do not tend in any way to improve the breed of seaplanes. Those evolved last year, although they resulted in most of the aeroplanes failing to pass the tests, or to get through the competitions, at any rate, showed a deliberate attempt to produce seaworthy machines. This year, apparently, any old thing with an engine, a pair of wings, and floats which will hold it up long enough to get off the water and to keep it there after alighting until it is towed in, can win the prize offered if it is fast enough. Also there is no inducement at all for such firms as specialise on seaplanes, for the winning of the prize depends on the flight on the land machine used, between the starting point and Marseilles or Genoa as the case may be, and some of the firms who make the very best seaplanes, such as Short Brothers and Sir J. Samuel White and Co., in this country, and Mr. Curtiss in America, have never attempted to produce a very fast land machine.

In fact, it is not a hydro-aeroplane meeting at all. It appears to be rather an endeavour to assemble as many popular pilots as possible at Monaco for a matter of three weeks or so, presumably with sound business idea that their admirers, male and female, will assist the tables at Monte Carlo. One opines therefore, that it was found last year that the serious-minded students of hydro-aeroplanes who came from all parts of the world to investigate the latest products of hydro-aerial science were not of the type to spend very much money, and that consequently an elaborate attempt is now being made to attract the aeronautical "nuts." Which, at any rate, shows considerable business acumen in the management.

The Possibilities of the Trans-Atlantic Flight.

Some very interesting figures, based on the actual performance of the Martinsyde monoplane, have been received from Mr. R. McGeagh Hurst relating to the possibility of crossing the Atlantic in a land machine in one unbroken flight.

The suggested machine would be a monoplane constructed to float, but with a normal land chassis.

Span, 65 ft.; chord (average), 12 ft.; total surface, 780 square ft.

Flying speed, 80 m.p.h.; total weight (all on), 4,500 lbs.; loading per square ft., 6 lbs. Petrol 320 gallons (2,250 lbs.). Oil, 150 lbs.

Engine, 230-h.p. Salmson (Canton Unné), fuel consumption, 15 gallons per hour. Engine and radiators, weight, 900 lbs.; two pilots, say, 320 lbs.

Starting from St. John's, Newfoundland, and aided by a favourable breeze of 10 to 20 m.p.h. the 1,880 miles to Valentia should be covered in 20 hours. The petrol capacity runs to 21 hours at full load, but, actually, would fly the machine for nearly 30 hours, owing to possible throttling as the load was reduced by consumption of fuel.

With a machine of this type piloting in fine weather would be easy work. Five hour shifts would be a reasonable arrangement.

At 1,000 ft. the machine would be well above fog—even over the Newfoundland banks. Star observations by night would probably be the simplest method of checking positions, though, unfortunately, the night would be very short. However, worked-out tables of what sun sight should be at given times would give a simple check as to whether the correct course was being followed.

In the event of breakdown it would be necessary to trust to the buoyancy of the machine, a large reserve of which is provided for by the petrol tanks alone in this case as these would displace 3,200 lbs. when empty, and the machine—without petrol—weighs only 2,250 lbs. Wireless would be necessary to bring assistance, and a telescopic mast should be fitted to increase the range.

These figures, which have been carefully checked by Mr.

Flying at Hendon.

Owing to the unspeakable weather on Saturday the cross-country handicap had to be abandoned, but in spite of wind and rain Messrs. Carr, Cripps, and Birchenough, all on G.W. biplanes, were out, Mr. Carr making three flights, two of them with passengers. Mr. Louis Noel, on the Blériot, to which he has taken lately, also made a fine flight with a passenger. Lieut. Spenser Grey, R.N., made a test flight on the new high-speed Sopwith belonging to the Navy.

Sunday was a better day, for the rain had stopped; nevertheless, the wind was very choppy. There was a good attendance and much flying. Messrs. Hucks, Noel and Marty flew on Blériots, and Messrs. Carr, Cripps, Strange, Birchenough and Howarth operated Grahame-White biplanes. M. Verrier did great things on a Maurice Farman, and Mr. Goodden flew high on his Caudron. M. Marty also flew the Morane-Saulnier, exploring the country round the aerodrome.

Flying at Brooklands.

Monday was an eventful day last week. A ticket was taken at both the Vickers and Bristol schools. Both pupils, at first attempt at the "vol plané," after flying well, overshot the mark and damaged the machines slightly. Later a Gnome cylinder blew off a Vickers biplane.

Mr. Dukinfield-Jones had several passengers up on the Flanders (Isaacson) these being practically his first. Mr. Alcock was likewise out on the M. Farman (Sunbeam). The D.F.W. made a couple of flights and then knocked a fence flat. Only the propeller was damaged.

The Vickers gun-machine was out with passengers. It is now being fitted with aileron control instead of a warp. Mr. Barnwell took up the Martinsyde, but after a perfect landing the wheels and skid hit a hummock and snapped off.

The new Sopwith (80 Gnome) was out for its tests in the morning and was flying on and off all day. It seems about as fast as the Avro. Two new Avros arrived, one a 100-h.p. A.B.C. tractor, and the other a 50-h.p. Gnome.

On Tuesday Mr. Jones was out and the Vickers "pumpkin"

Harold Barnwell and Mr. Handasyde, show that the Trans-Atlantic non-stop flight is possible to-day.

The alternative is a float machine, with, say, 8 to 10 hours' fuel capacity, making the journey in three 600 mile flights.

Such a machine could be much smaller than the non-stop machine, say, 150-h.p. to 200-h.p. engine, 600 square ft. surface, 65 m.p.h.; 8½ gallons petrol (600 lbs.); 320 lbs. for two pilots' machine, 1,000 lbs.; floats, 400 lbs.; total, say, 3,000 lbs. This machine would be a biplane probably.

Assuming that it could be arranged with one of the big oil firms that a line of their tank steamers were dotted across the Atlantic at every 100 miles or so, that a patrol of U.S.A. torpedo boats were arranged for 300 miles or so from the American side, and that the British Admiralty conveniently decided that it was necessary that a flotilla of T.B.D.s strung out in a 400 or 500 mile line should carry out, say, wireless experiments off the west coast of Ireland at the same time, this would be a perfectly feasible method of achieving the flight.

Smoke signals by day and rockets by night would be visible for 30 to 40 miles and would facilitate picking up the tank steamers and keeping on the course, while the same methods would be employed with more certainty of success in the event of a breakdown.

The general opinion amongst those best qualified to judge, however, is in favour of the non-stop flight, as it is pointed out that there would probably be some considerable difficulty in filling up from a steamer in a mid-Atlantic swell, that a much more accurate course must be kept to be certain of picking up a steamer 600 miles away, or even 100 miles from the last one sighted, than to hit the coast of Europe between the north of Ireland and the south of Portugal 1,900 miles away.

Further, it is rather generally supposed that a machine floating on its fuselage, with large empty fuel tanks to give it a big reserve of buoyancy, would have a better chance of withstanding the Atlantic seas than would most seaplanes or flying boats.

which has now become an ordinary box-kite with a 70-h.p. Gnome was tested by Mr. Barnwell. Two balloons floated across the aerodrome in the morning and at midday M. Marty arrived with a passenger from Hendon on a Morane (80 le Rhone) and returned later.

On Wednesday Messrs. Jones, Alcock, Raynham and Pixton were out doing high flights with passengers. The first three all day, the last only in the morning, as someone put his foot through the plane.

Messrs. Jones, Alcock, and Pixton were out on Thursday, likewise Mr. Raynham on the 50-h.p. Avro and Mr. Barnwell on a box-kite. In the afternoon Lieut. Spenser Grey flew the little Sopwith to Hendon with Mr. Sassoon as passenger.

On Friday Messrs. Jones and Alcock were out and Mr. Barnwell took a passenger to 3,000 feet on a box-kite, and on Saturday Messrs. Jones, Alcock, and Raynham were out.

On Sunday there was some very fine flying by Mr. Barnwell on the Martinsyde, Mr. Alcock on the Farman (Sunbeam), and Mr. Jones on the Flanders (Isaacson), all in a very nasty wind.

Among interesting new machines is the new Avro, 100-h.p. A.B.C. This is generally on the lines of the 80-h.p. Gnome machine with which Mr. Raynham has been flying so well. The Avro have also a new 50-h.p. for the Admiralty here.

Messrs. Martin and Handasyde's new monoplane, whose steel wheelbase has been temporarily removed and replaced by a hickory one, has been performing extremely well and is now having its engine overhauled preparatory to her journey to Farnborough for official tests. This firm are also well forward with the new steel "pusher" biplane. Though this is generally on standard lines, there are many novel and interesting features in the actual construction.

A Vacancy.

There is a vacancy in the office of this paper for a decently educated youth as junior clerk. He must know something of shorthand and typewriting, and a knowledge of German will be a recommendation. Applications by letter only.

A Simple Explanation of Inherent Stability.

(Continued.)

By W. H. SAYERS.

Now a machine is disturbed laterally because one side gains lift, or the other loses it, the side having the excess of lift rising, that having the deficit falling. In a wing of rectangular plan form—that is with uniform chord—if the pressure per square foot is uniform it is fairly obvious that the total pressure acts as though it were a single force at the centre of the wing, i.e., the centre of pressure of each wing is half-way along the span.

Fig. 7 shows a wing of triangular plan form, tapering to a point. If such a wing is acted on by a uniform pressure per square foot it will be seen that the total pressure on any strip, say, 1 ft. wide, will be proportional to the fore and aft length of that strip, and that the pressure on longitudinal strips will be proportional to the length of the arrow under that strip (in the lower part of Fig. 7). Hence the total resultant force will be as the large arrow (R) acting closer to the body than half-way. Also if one wing receives an excess pressure which is uniform per square foot the resultant of that excess will act closer to the body, and from the well-known principle of the lever, will produce a smaller effect on the machine.

Now, obviously, any less degree of taper will produce a similar, though less, effect, and so also will reduction in the camber and angle of incidence ("wash out") from the body to the tip, for any pressures due to air moving past the wings with a velocity in the line of flight. That is, a "wash out" would not make any difference to the effect of purely vertical gusts, if such things could exist.

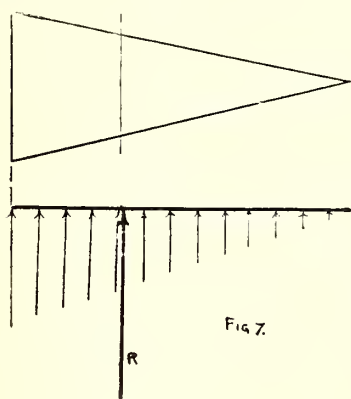


Fig. 7.

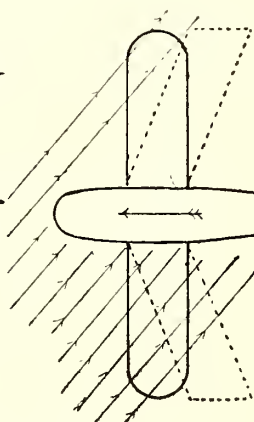


Fig. 8

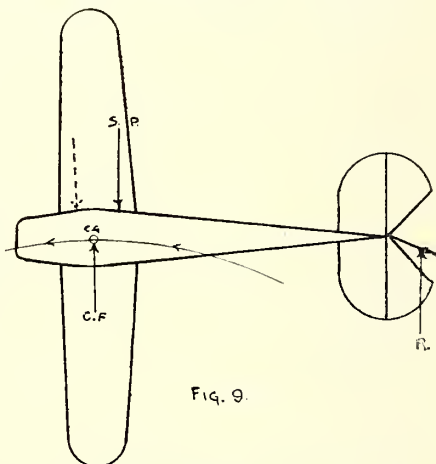


Fig. 9.

Now, consider a wing, tapered or washed out so as to bring the Centre of Pressure close to the body side, but provided with an extension set at a negative angle. This extension produces a downward pressure, which diminishes the total pressure on the wings, but also moves the point of application, or centre of, total pressure closer still to the body, and since this negative pressure is acting much further out (at a larger radius) the centre of total pressure may be caused to pass beyond the base of the plane without completely neutralising the lift.

If we can thus cause the centre of total pressure of such a wing to lie on the centre line of the machine (and this is possible in theory at any rate), then one wing will maintain the machine in balance laterally, the other side being absent. If this condition is attained, then as long as each separate wing is in uniform air, however different may be the conditions around each wing, no force tending to overturn the machine sideways exists.

This condition does not occur, of course. But Fig. 8 shows an aeroplane in a side gust. Since the machine has a forward movement, the actual movement of the air during the gust must be diagonal, and, as the diagram shows, one wing is practically unshielded, i.e., if the gust is uniform that wing is subject to uniform conditions, and on this wing the whole compensating effects of negative tips would take effect, lead-

ing to at least a considerable reduction in the disturbance. The far wing is partly and unequally shielded, the tips receiving the least shelter. The dotted lines show that sweeping back the tips places the far side wing in more nearly uniform shelter. The figure is, of course, diagrammatic only, and should not be taken as representing that a large portion of the far wing is completely shielded—were this the case the problem would be, indeed, hopeless. In fact, with swept-back wings and properly proportioned negative tips the uncorrected disturbances due to uneven shielding are quite small.

Vertical Fins.

If the wings form a dihedral angle, then in addition to the extra lift caused by a side gust on the near or unshielded wing, there is a tendency to lift the near side and depress the far side, due to the fact that at right angles to the line of flight the near wing has a positive, and the far a negative, angle of incidence.

This may be compensated for by enlarging the negative tip surface, or by providing a vertical fin below the centre of gravity, which will produce an opposite tendency when struck by the gust. This fin may be made sufficiently large to overcome the extra lift on the unshielded wing in addition, when the negative wing tips may be dispensed with—as was proposed in the Ding-Sayers monoplane.

It may be noted that vertical fins above the centre of gravity have frequently been proposed, the theory being that, on a machine tilting sideways there would be a tendency to

slide towards the low side, and that the consequent air pressure on the fin would push the machine straight. It is obvious that this fin would be acted on by side gusts and tend to increase the disturbance due to them. It is, in fact, equivalent in most ways to a simple dihedral angle, but inferior in the degree of stability obtainable.

Directional Stability.

It is obviously desirable that an aeroplane shall not be liable to be deflected from its course by any disturbance. Now a purely end-on gust, if uniform, will not have any tendency to throw the machine off its course, no matter what its force. In the case of a side gust the unshielded wing will have an increased resistance as compared with the shielded wing. But more important than this is the effect of such a gust on the body, or any other side surface, such as fins or side faces of a wing at a dihedral angle.

To secure that no turning tendency shall be produced it is necessary that the lines of action of the total resultant side pressure shall act through the centre of gravity of the machine. Then the only effect on the machine will be bodily motion sideways without any turning effect. Unfortunately, the centre of side pressure varies in position with changes in the direction and the strength of the gust; so complete balance under all conditions is impossible.

Now if the centre of side pressure is forward of

the C G, the nose of the machine will turn with the gust, and the machine will turn down wind, which will momentarily reduce its air speed. If, on the contrary, it is behind the C G, the tendency is to turn up wind and increase the air speed. The first case is dangerous—the latter safe, therefore it is desirable to keep to such an arrangement of vertical surfaces as will always keep the centre of side pressure aft of the C G.

But the most important aspect of this question arises when the machine is turning under the action of the rudder. Fig. 9 shows this case. The rudder of the machine is turned to the left, and a pressure (R) acts on the rudder, tending to swing the tail of the machine to the right. Momentarily the machine moves through the air crabwise, which produces a side pressure (S P) on the right-hand side. Under these two pressures the machine commences to turn in the curved path shown. As soon as the machine starts actual turning a third force—centrifugal force (C F) commences to act, through the C G of the machine, and towards the outside of the curve.

Now, if the side pressure S P acts behind the centrifugal force—i.e., behind the C G—it will be seen that centrifugal force opposes the turning, and when the rate of turning has reached a certain value the three forces are in balance and the machine will continue turning steadily. If the rudder is now put back into neutral R disappears and C F and S P tend to take the machine off the turn, and both of them disappear as soon as the machine has stopped turning.

But suppose S P to act in front of the C G, as at the dotted arrow. Then C F and S P themselves provide a tendency to turn to the left, added to the tendency due to the rudder, and instead of reaching a steady state of turning the machine will turn faster and faster. Even when the rudder is put back to neutral, S P and C F still keep increasing the rate of turning. As a matter of fact, as the rate of turning increases S P tends to move further forward and to increase hence a machine may start a turn with S P behind the C G, and as the rate of turning increases S P may move forward till it is in front of the C G, and may eventually become so large and so far forward that even with the rudder hard over in the opposite direction the turning continues.

This is the explanation of the spiral nose dive effect. [It probably accounts for many accidents, such as those on Bréguets, Mr. de Havilland's on the R.A.F. "S.E.," certain Nieuport smashes, and Mr. Spratt's recently on the B.E. with an Austro-Daimler, and Mr Pickles' on the Champel.—Ep.] The theory of the elevator acting as rudder when the machine has a large bank does not explain the phenomenon, as unless there are at least two forces acting independently of the pres-

(To be Concluded.)

Mr. F. H. Bramwell on Propellers.

On Wednesday of last week Mr. F. H. Bramwell lectured on propellers to the Aeronautical Society. He reviewed certain experimental results, made partly on water propellers and partly on air propellers, showing certain discrepancies between the models tested and the full-sized propellers which may be accounted for by differing distortion of the blades in the two cases, which discrepancy Mr. Eiffel showed could be avoided by running the model at a speed which is inversely proportional to its scale (i.e., a half-scale propeller model should be run at twice the speed of the prototype). It was remarked that experiments show efficiencies reaching 82 per cent. have been attained with very low slip and thrust values while even within reasonable limits of slip and thrust efficiencies well over 70 per cent. have been reached.

Mr. Bramwell then discussed the question of propeller design. The method advocated being that of regarding each short section of blade as an aerofoil, and determining the thrust and drag of this element at its particular speed and angle and summing up the results of each individual section to give the result of the whole blade.

This method leads to the conclusion that the best result is obtained if each element has that angle of attack which gives the best lift to drag ratio. That is supposing a section of blade is determined on whose best angle of attack is four degrees and that under working conditions it is required to advance 5 ft. per revolution, then the blade angle at any

point is that corresponding to five-feet pitch plus four degrees. This method is due mainly to Lanchester and Drzewiecki, and the speaker suggested that in view of the large number of aerofoil sections for which accurate data are now available it would now be possible to use this method, not as heretofore by taking the mean blade section into account only, but by forecasting the results of each element of the blade according to its actual section.

It was interesting to note that Mr. Bramwell said that the high efficiencies attained with the average propeller make one look with suspicion on the devices of those inventors who propose to improve the efficiency by any appreciable amount. In the following discussion Dr. Stanton, Dr. Thurston, Mr. J. D. North, Mr. A. R. Low, and others argued copiously in mathematics, impossible to report, usually disagreeing with the lecturer in point of theory, but mostly reluctantly agreeing that by no endeavour could they design a propeller whose efficiency appreciably exceeded those already produced by the rule-of-thumb methods of approximation which they so deplored.

The side pressure here evidently includes that due to all possible causes as pressures on the body, on any vertical fins, or on upturned sides of wings. There will obviously be a side pressure on wings with a dihedral when turning, or on flat wings when banked, and this side pressure may be very large, and is bound to act not far from the centre of gravity, owing to the position of the wings. Hence, as far as possible, this side pressure must be kept small. Obviously the wings themselves cannot be reduced, but swept-back wings with negative tips must always have their centre of side pressure farther back relatively to their centre of lift than normal wings. Also the negative tips tend to reduce banking on turns to within reasonable limits, reducing thereby the side area due to wings on which such pressure acts.

Fins beneath the centre of gravity, when acted on by the side pressure, oppose banking with the same desirable effect, and may obviously be so arranged as to have their own centre of side pressure as far aft as may be desired, thus securing this essential form of stability.

With fins above the C G the tendency, on the contrary, is to increase banking on turns, or to increase the tilt due to a side gust, and therefore to increase the total value of side pressure possible, and particularly the most dangerous component—that on tilted wings—and are hence objectionable and even dangerous, as tending to produce the very catastrophe for which they have been proposed as a remedy, unless made extremely large and placed very far back.

point is that corresponding to five-feet pitch plus four degrees. This method is due mainly to Lanchester and Drzewiecki, and the speaker suggested that in view of the large number of aerofoil sections for which accurate data are now available it would now be possible to use this method, not as heretofore by taking the mean blade section into account only, but by forecasting the results of each element of the blade according to its actual section.

It was interesting to note that Mr. Bramwell said that the high efficiencies attained with the average propeller make one look with suspicion on the devices of those inventors who propose to improve the efficiency by any appreciable amount.

In the following discussion Dr. Stanton, Dr. Thurston, Mr. J. D. North, Mr. A. R. Low, and others argued copiously in mathematics, impossible to report, usually disagreeing with the lecturer in point of theory, but mostly reluctantly agreeing that by no endeavour could they design a propeller whose efficiency appreciably exceeded those already produced by the rule-of-thumb methods of approximation which they so deplored.

There Are Others.

From the "Times" agony column, February 19th, 1914:—

"AVIATION."—Cross-Atlantic Waterplane Competition.—FINANCIERS WANTED for Syndicate to Build Naval Army bullet-proof flying-boat. Guaranteed to do everything but talk.—Inventor, U.41, The Times Office, E.C."—Why not apply to the Horse Marines?

The Week's Work.

Weather Reports for Week Ending February 22nd.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Good	Windy	Windy	Wind Rain	Windy	Imposs.	Windy to Fair
Calshot ...	—	—	—	—	—	—	—
Eastchurch ...	Calm	Fine	Wind Rain	Wet Wind Rain	Fair	Squally	Rain Wind
Hendon ...	Fair	Windy	Windy To Fair	Windy	Windy	Windy	Windy
Montrose ...	Gale	Bright	Stormy	Bright	Bright	Gale	—
Salisbury Plain	Good	Windy	Imposs	Wind	Imposs.	Wind Rain	—
Shoreham...	—	—	—	—	—	—	—
Windermere ..	Windy	Windy	Windy	Windy	Windy	Windy	—

School Reports.

Eastchurch.—On Monday Mr. Gordon Bell with passengers on new Short propeller biplane (100-h.p. 9-cylinder Gnome) side by side type. The Hon. Maurice Egerton made three flights on his Short biplane (50-Gnome). On Tuesday Mr. Bell again on new Short. Mr. N. S. Percival out on Dunne (80 Gnome), damaging a wing-skid in landing. The machine behaved exceedingly well. Mr. Bell was again out on Thursday and Friday on the sociable Short, 100-h.p. Gnome with Mr. Fairey.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Birchenough, Strange, Marty, and Cripps. Pupils with instructor: Messrs. Stewart, Clarke, Grahame-Parker, Barrs, Moore, and Lt Lindop, Mr Tapp, and Prince Leon Sapieha. Strts or rolls alone: Messrs. Clarke, Bjorkland, Stewart, Morris. 8's or circles alone: Messrs. Lillywhite, Clarke, Norris, Howarth, Bjorkland. Certificate taken: Mr. Clarke. Machines: Grahame-White biplanes; Blériot mono.

AT EWEN SCHOOL: Instructor: Mr. F. W. Goodden. Pupils strts or rolls alone: Messrs. Wiggett and Curtis. Half-circles alone: Mr. J. Bankes-Price. Machines in use: 35-h.p. Caudron. On Tuesday Mr. F. W. Goodden put up an excellent exhibition flight lasting 30 mins.

AT HALL SCHOOL: Instructor during week: Mr. J. L. Hall. Pupils with instructor: Messrs. Edcombe and Palmer. Strts or rolls alone: Messrs. Arcier, Gearing, Brookes (20 each), Allen (8). Messrs. Hollingsworth and Allen passenger trips on Avro with Mr. Hall. Six passengers carried during week. Machines in use: Avro and Caudron biplanes; Blériot mono.

Brooklands.—AT BRISTOL SCHOOL: Instructor during week: Mr. Halford. Pupils with instructor on machine: Lt Binney (2); Lt Fraser (5). Strts or rolls alone: Lt Binney (6); Lt Fraser (9). 8's or circles alone: Lt Binney (9); Lt Fraser (7). Certificate taken 16th February: Lt Binney; flying mostly at an altitude of over 1,000 ft. Machines: Two school biplanes.

AT VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Elsdon, and Knight. Pupils with instructor on machine: Lts Crosbie (1), Mansergh (6), Capt Ross Hume (6), Mr. Creagh (2), Mr. Farie (1), Mr. Hurst (2), Lt Spencer Warwick (1) (biplane). Strts or rolling alone: Lts Jackson (2), Mansergh (4), Capt Ross Hume (3), Lt Spencer Warwick (1) (biplane). 8's or circles alone: Lt Mansergh (5), Capt Ross Hume (5), Lt Spencer Warwick (3), Mr. Creagh (1), Lt Jackson (2) (biplane), Messrs. Hinshelwood (1), Webb (1), Chataway (1) (monoplane). Certificates taken: Lt Crosbie (2nd half) and Mr. Creagh, both on biplane. Machines in use: Three propeller biplanes; one mono. Mr. Barnwell on gun-carrying biplane with passenger.

On M. Farman-Sunbeam Mr. Alcock on Monday with passenger to Staines and back at 3,000 ft, also with Mr. Coatulen and Lt Blatherwick. On Wednesday 50 mins at 5,000 ft with passengers. On Thursday with Lt Blatherwick at 2,500 ft in rain. On Friday across country with passenger at 2,300 ft. Testing new Lang propeller in afternoon. On Sunday in strong wind with Mr. Fenn at 1,500 ft, and with Mr. Max Worms at 1,500 ft, also with passenger at 2,800 ft.

Salisbury Plain (BRISTOL SCHOOL).—Instructors during week: Messrs. Jullerot, Voigt, and Sippe. Pupils with instructor on machine: Mr. Stutt (4); Lt Barrat (7); Capt Walcot (15); Lt Harman (1); Lt Myburgh (4); Lt Bolitho (3); Lt George (2); Mr. Hay (1). Strts or rolls alone: Lt Harman (3); Mr. Stutt (4). 8's or circles alone: Mr. Stutt (7). Machines in use: Three school biplanes; one tractor biplane.

Windermere, LAKES FLYING CO. SCHOOL.—Mr. Adams for short spin on "Water Hen" on Friday.

HANGARS.

Any size built and fitted with
PERFECT SLIDING DOORS

obviating all the disadvantages of every present system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

GARAGES, CLUB HOUSES
and other buildings. *Estimates Free.*

WIRE-WOVE ROOFING COMPANY,
108, Queen Victoria St., London, E.C.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situation Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS.—How to Patent Inventions. Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

W. H. EWEN SCHOOL OF FLYING. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION Co., London Aerodrome, N.W.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work. £50. Passenger flights from £2 2s.

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from **THE SHOREHAM FLYING SCHOOL**, Shoreham Aerodrome, Sussex.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY**, Leeds.

CHAUVIERE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD.**, 307, Euston Road, London, N.W. Telephone: 912 North. Telegrams: "Aviprop," London.

VERY CHEAP.—Aeroplane propeller by Lascelles Weiss; absolutely new; in perfect condition.—Particulars on application: N. GIBBS, "Gotha," Morden Hill, Blackheath.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.**, 1, Queen Victoria Street, London. Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE**, 166 Piccadilly, W.

WANTED, fairly modern monoplane or biplane, for cash, or exchange 20 h.p. Standard landaulette, cash adjustment.—Box 536, c/o **THE AEROPLANE**, 166, Piccadilly, W.

EMPLOYMENT.

BALLOONS.—Wanted, experienced hands for balloon and airship envelope manufacture.—Apply—Box 534, c/o **THE AEROPLANE**, 166, Piccadilly, W.

WOODWORKERS wanted; must have had previous experience in aeroplane work; state rate, references, etc.—**PERRY, BEADLE & Co.**, Gould Road, Twickenham.

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—**WULFFING**, Aeronautical Engineer, 2, Barclay Road, Walham Green Station.

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD.**, Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD.**, 130, Hackney Road. 'Phone 4770 Wall.

MODELS.

M.S.C. MONOPLANE, size 31 inches by 24 inches. Price 5s. Flights of nearly a 1/4-mile have been obtained with this model. Set of parts, with drawings for building above model, 2s. 6d.—**MURRAY, SON & Co.**, 387a, High Road, High Cross, Tottenham, N.

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

'Phone: Kingston 869.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our **New Illustrated Models Catalogue** now ready, contains **Sopwith Tractor, Deperdussin, Bleriot, Canard, Clarke Mono**, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic rod. per doz. yds

S. J. KEMP & Co.,
CROWN WORKS, Kingston-on-Thames.
(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)
Every Requisite for Model Aeroplanes. Send 1d. for List.
Models of Every Description built promptly.
Phone 321 Kingston. Telegrams "Garage, Kingston-on-Thames."

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the
"AERO-RESTAURANT"
Next the gate of the Aerodrome.

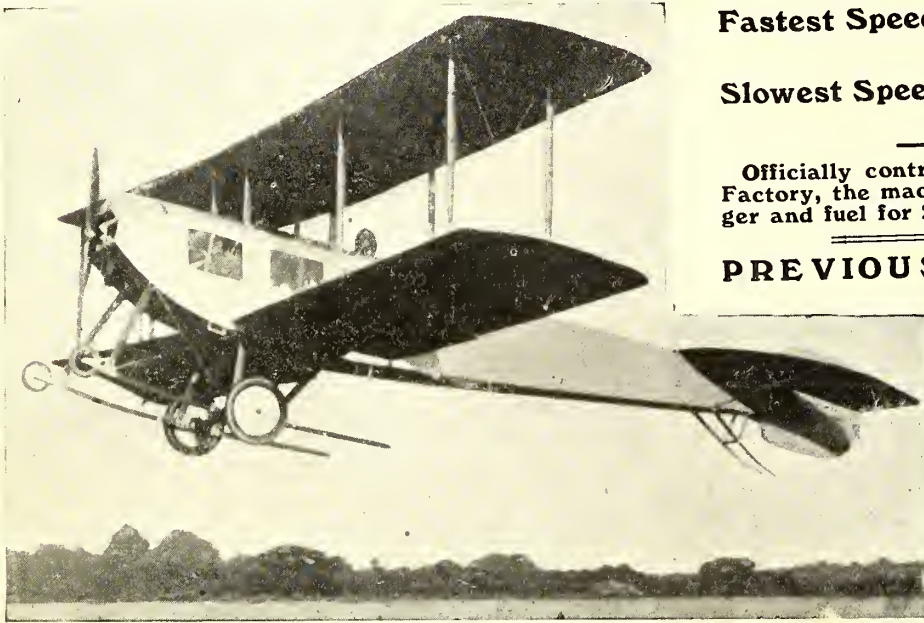
Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.
LIQUID SCOTCH GLUE
Ready for use at once.
USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.
Write for Price List and Particulars—
MENDINE CO., 8, Arthur Street, London Bridge, E.C.

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnome) beat all WORLD'S RECORDS FOR EFFICIENCY.



Fastest Speed 92 miles
(154 kms.) per hour.

Slowest Speed 36.9 miles
(61 kms.) per hour.

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

PREVIOUS RECORDS on the preceding type of **SOPWITH BIPLANE** (80 h.p. Gnome).

British Height Record
(Pilot alone) 11,450 ft.

British Height Record
(Pilot and 1 Passenger) 12,900 ft.

British Height Record
(Pilot and 2 Passengers) 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to H. Majesty's Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works: KINGSTON-ON-THAMES.

Telegrams:
"SOPWITH KINGSTON."

FLYING AT HENDON

SATURDAY NEXT, FEBRUARY 28th, 1914
HENDON MEETING. GRAND SPEED HANDICAP at 3 p.m.

COMING EVENTS.

- Sat., March 7th. MARCH MEETING.
- Sat., March 14th. MIDDLESEX MEETING.
- Thur., Mar. 19th. DESOUTTER BENEFIT MEETING.
- Sat., March 21st. AERO SHOW SPEED CONTEST.
- Sat., March 28th. SPRING MEETING.

WINTER SEASON—RACES EVERY SATURDAY
Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

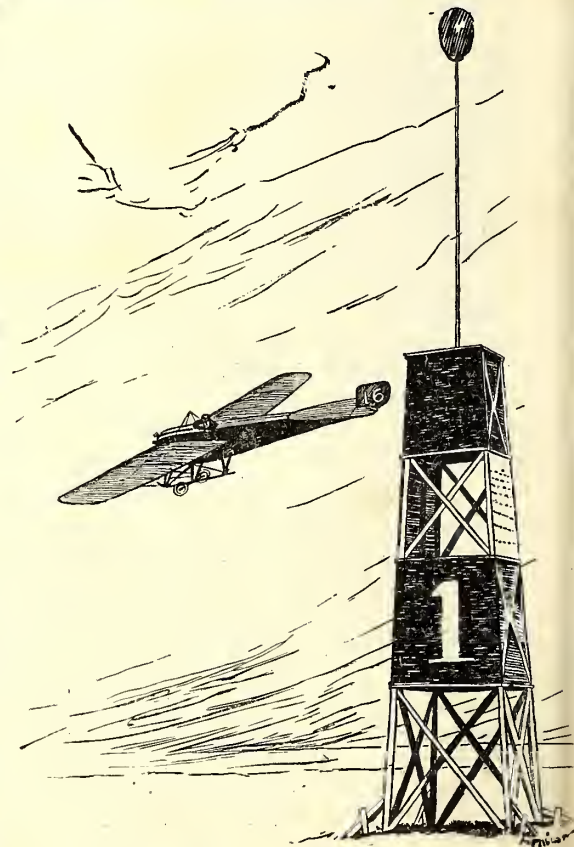
Admission, 6d., 1s., 2/6 (Children Half-price).
Motors (including chauffeur), 2/6

PASSENGER FLIGHTS DAILY FROM £2 2 0.

The London Aerodrome, Hendon

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."
LONDON: 166, Piccadilly, W. Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."



"THE AEROPLANE," MARCH 5, 1914.

THE AEROPLANE

12
WEEKLY

Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, MARCH 5, 1914.

No. 10

THE LOOPER.



Mr. B. C. Hucks, the first British aviator to loop the loop. He has done a great service to aviation through the interest he has aroused throughout the provinces by his exhibition flying during the past three years.

An Invitation to the Beatty School of Flying

■ ■ ■ ■ ■ ■ ■ ■

The Wright biplanes in my school have the usual foot-bar for steering, and wheel and pillar for warp and elevator. Pupils trained to fly on these machines are able to fly any other type without special practice.

When their training is completed, they have not merely taken their certificates, they are trained pilots.

■ ■ ■ ■ ■ ■ ■ ■

Tuition on { HANDLEY-PAGE MONOPLANE } £75
 { WRIGHT BIPLANES . . . }

Beatty School of Flying,
 London Aerodrome,
 Hendon, N.W.

SPECIAL TERMS TO
 NAVAL & MILITARY OFFICERS.

The "Bristol" Flying Schools

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. □ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
 FILTON HOUSE, BRISTOL.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all newsagents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Point of View.

It is always well that every point of view should be laid before the readers of a paper which is conducted, as is THE AEROPLANE, on the principle of giving a fair field to all and no favour to anyone. Therefore, the letter which follows will be found interesting, as showing how the aspect of certain things vary according to one's point of view. This letter was written by an officer in the King's Service who has had some opportunity of observing various aeroplanes at work, and as such it is worthy of respect. On the whole I am rather inclined to agree with it, except on certain specific points:—

"I feel constrained to enter a small protest against the tone of your notice in to-day's AEROPLANE of the accident to an F.E. aeroplane, which involved the death of Mr. Haynes. Although, as you know, your attitude towards the Royal Aircraft Factory has not always met with universal approval, yet except in a few cases it has generally seemed to me to be fair criticism. But in this case your remarks seem to overstep the limits of fair criticism, and even of decency (as they also seemed to me to do at the time of Lieut. Arthur's death on a B.E. biplane last year), and I cannot but think that this tone will not advance any cause you may have at heart, but will rather tend to prejudice your readers against your point of view.

"To suggest, as you do, that the F.E. biplane has been merely 'put together' with no regard to theoretical design at all is surely rather absurd, as everyone knows that the R.A.F. works very carefully indeed to theoretical design—in fact, as you have so often pointed out yourself in THE AEROPLANE, sometimes almost too much so.

"The pious wish you express that the designer had been killed in the machine instead of Mr. Haynes hardly appears to be in good taste; and the statement that he (the designer) is entirely ignorant of aeroplane design appears to be merely rather foolish spite.

"The F.E. biplane has now been flying some six months—I myself saw the first of her type on her first flight early in September last at Farnborough, when she had not got her gun mounted; on this occasion Mr. Kemp, who was her pilot, although asked to confine his flight to short 'straights' (as she had not been up before), nevertheless carried out a good many evolutions straight off, and on his descent expressed his perfect confidence in the flying capabilities and controllability of the machine. Since then she and others of her type have carried out many and long flights.

"This is not the first time that a well-trying aeroplane has got out of control during a descent; nor, unfortunately, will it probably be the last (only a week or so ago a 50-h.p. Avro did much the same thing at the Central Flying School). One cannot in justice on account of this condemn every such machine outright as being 'unsafe,' and the designer as being 'entirely ignorant.'

"Apart from any consideration of the good taste or otherwise of your remarks, your attitude in this case does not seem to be consistent with your attitude of a few weeks back, when (in reviewing last year's progress) you actually went so far as to praise the R.A.F.; or at least to admit they had done good work by designing and producing really good aeroplanes, and thereby encouraging the British industry by giving them something to work for in producing a machine to beat the products of the R.A.F.

"These violent and unreasoned outbursts of rage against the R.A.F. and all to do with it, which are caused, apparently, by a lack of perspective and lead (as it seems to me) to a want of good taste in your published opinions, can surely do no one any good, and may do a lot of harm. Apologising for the length of this letter, and for any opinions I may have expressed in it antagonistic to yourself (which, believe me, are meant in no rudeness to yourself)."

Firstly, let me express my appreciation of the spirit in which the letter is written—one cannot make omelettes without breaking eggs, and one cannot criticise without hurting feelings, though in this instance no one could be hurt by my correspondent's methods. I must, however, deny the existence of "violent and unreasoned outbursts of rage." Unfortunately, journalism in this country is so hedged about by conventionalities and customs, and a mistaken sense of dignity, that anything in the nature of straight, hard hitting is apt to be mistaken for violence. We have too much regard in this country for that time-wasting convention known as "Parliamentary language." Even Mr. Churchill, the most direct statesman of to-day, has to call lies "terminological inexactitudes," though the polysyllabic subterfuge was obviously used in sarcasm. The English have a foolish habit of knocking a man down and then standing back while he gets up and prepares for another onslaught, in which he may be the winner, and anyhow it prolongs the combat. It is much cheaper and quicker in the end, for him also, to jump on him while he is down, though it may not be sportsmanlike, and though it is certainly not in good taste. Battles took longer and wasted more lives in the days of "*Tirez, Messieurs les Anglais*," than they do now when one shells a position to pieces and then rushes it.

At the time of the death of Mr. Desmond Arthur last year, to which my correspondent refers, I received a letter from his best friend entirely approving of what I had said, and then, as now, I was more concerned with the safety of those who fly than with conventionalities as to good taste or dignity of method.

The Question of Design.

As to the question of theoretical design, referred to in the second paragraph of the letter, I think most people who make successful aeroplanes will agree that the great majority of theoretical designers are beneath contempt when put to any other use than that of working out figures for practical men. They are well enough in their proper place as calculating machines, just to check dimensions, and so forth, but they cannot be trusted to originate anything. By themselves they are about as useful as a cash-register would be in a shop without a salesman.

The one real success of the R.A.F. has been the B.E. biplane, which was for all intents and purposes the product of Mr. de Havilland, a practical man who built with his own hands an engine and aeroplane on which he flew in 1910, before the vaunted scientists of the R.A.F. had ever seen a flying machine. Only last year Mr. de Havilland narrowly escaped being killed by a "scientifically designed" high-speed machine which came to grief for exactly the same reason as that which killed Mr. Haynes, namely, an uncontrollable spin round its own nose caused by lack of area aft.

As is explained elsewhere in this paper by Mr. Sayers, the

"scientist" makes the fatal mistake (literally in this case, and in the Bréguets and other machines) of "calculating" the rudder as available side area, and forgetting that it is merely a movable control surface. A properly designed aeroplane should be directionally stable, though it would not be easily controllable, if the rudder fell off in the air.

The reason why so many machines which are altogether wrong in this respect still fly decently is that as the pilot starts a turn he instinctively banks, which throws the machine over so that the fixed tail-plane and elevator arrive at an angle to the air which enables them to act as dampers and prevent "spinning." But, in the case of the F.E., in which the wings had gone sloppy from bad construction and overwork, the warp was useless, and so the tail-plane simply sliced horizontally through the air, and the fatal spin resulted.

Construction.

As to construction, I am told on quite reliable authority that the pilot who flew the machine at Shoreham two days before the accident said to a friend there, "If ever I get this beast home I shall go to church for a week." It would be interesting to have a denial of this.

Doubtless, as my correspondent says, Mr. Kemp expressed his pleasure with the machine (or a similar machine) when new, for then the warp acted sweetly, the wings were solid and lifted well, and consequently the tail held the air as I have mentioned above, so presumably the machine flew all right.

It takes a lot to make a pilot condemn an aeroplane. First of all he is afraid of losing his job. Secondly, he is afraid of being accused of being afraid by the other pilots. Thirdly, most pilots are very bad judges of aeroplane design or construction, so that something has to be very wrong indeed before they notice it. So long as a machine lifts well, is fast for its power, and answers its controls fairly well, the average pilot, even if he is a highly skilful flier, is quite pleased with it.

When, however, a genuine constructor of experience gives his opinion one sees the other point of view. Here is an extract from a letter received at the same time as the first one I have quoted. The writer of it is well known as one who turns out first-class constructional work, but, for obvious reasons, his name cannot be given:—

"You could have no better example than the ill-fated F.E.2 of the fatuousness of the claim that the R.A.F. produces 'the best machines in the world.' I have not for a very long time seen anything to approach this apology for a pusher biplane, for bad design and workmanship. Some of the features would be quite unforgivable in any machine produced by an independent designer. It looked to me as if the machine had been made by a jobbing carpenter working against time. This is only the construction, but the aero-dynamic design was not even intelligent. They had stuck a huge body out in front, and I failed to see what provision had been made to counteract it.

"It is a well-known fact to those who have done much flying on the pusher type that a big fuselage tends to 'take charge' and cause a spiral dive. It is a very easy matter to test this by putting the rudder hard over, and then taking the feet off the rudder bar. If the machine tends to decrease the radius of the turn the fuselage is undoubtedly too large and must be cut down, or a fin mounted in front of the rudder. I am sure this had not been done with F.E.2.

"The tail plane was one of the worst nightmares I have seen, and I was not surprised to hear that the pilot remarked she was slow on the controls. We shall be told, no doubt, that this has been mathematically calculated, but practice tells a very different story.

"The spacing of the interplane struts was another weak feature. It is quite evident that they have yet to learn at the R.A.F. the value of a rigid front edge. The tail bracing was a very striking evidence of the lack of logic in the minds of the perpetrators.

"It is very disheartening to see this sort of production hailed as 'Best British Brains.' England will want a lot of saving if that is all the 'best' can do. Really, I do not think there is a constructor who would disgrace himself by turning out such trash. There is no excuse for this sort of thing, and the R.A.F. ought to be told to 'Get on or get out.'

As to the flying quality of the machine, attention was drawn last week to the note from our regular Shoreham correspon-

dent, written two days before the accident, on the miserable way in which the machine flew. In another letter from Shoreham it is stated:—"When the F.E.2 was here last week it was noticed that engine and all wires were covered with rust." This might account for a broken control wire or for stiff working of the warp, either of which would cause just such an accident on the F.E.2., though neither should do so in a properly designed machine.

Yet another letter from Shoreham says:—"When it left here I was reminded of the old days at Brooklands when we were nearly beside ourselves with joy if we could do about 100 feet per minute. The F.E.2 staggered out of the zero-drome at no more than 50 feet, and was nearly at Worthing before touching 1,000 feet. Contrast this with the H. Farman that was here a week ago, and the Sopwiths that have been over here at odd times."

It will be noticed that these various correspondents all emphasise the very points to which I drew attention last week, and they are vastly better qualified to judge than I am, as a mere looker-on who scribbles his observations on paper.

My first correspondent's reference to the Avro is beside the mark. In that case, so far as I can gather, the pupil who was flying it—the machine having dual control—let it side-slip in turning, and, having learned to fly on a box-kite, he promptly shoved the nose down hard, and, owing to the controls acting quickly, it developed so much diving speed that when he started to flatten out at what would have been a safe height for a box-kite, there was no room to do so, though the instructor who was with him nearly managed to save the smash. This was purely a case of a mistake in flying by an inexperienced pilot. The F.E.2 smash was an uncontrollable accident caused to one of our finest fliers by the crass ignorance of the most largely and most unfairly boomed firm of aeroplane constructors in the world, a firm whose entire reputation has been built up by political "pull," and is based on the success of the product of one good man, a success which I have always freely acknowledged to his credit, though I have held out steadfastly against the absurd claims made on the strength of his personal success for the most pernicious, obnoxious, and deleterious gang of brain-pickers it has been my ill-fortune to meet in a somewhat variegated career.

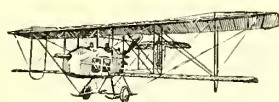
I could forgive them if their brain-picking produced anything worth having, but considering that all the money they have spent has only produced the variants of the "B.E."—the "R.E." and "S.E."—all of which Mr. de Havilland would probably have turned out equally well in a shed at Brooklands, one begins to get tired of hearing their praises sung. The only efforts of the R.A.F. on its own account have killed Theodore Ridge and Ewart Haynes, and in all human probability its bad system of workshop supervision killed Desmond Arthur. Surely a pretty record for anyone to defend.

And then an officer in the King's Service complains of lack of good taste in my criticisms. May I ask him whether he would think about good taste when sending in a report to headquarters on bad guns and ammunition if defective matériel on active service resulted in his men being killed unnecessarily?

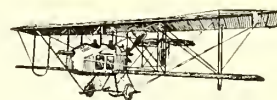
This business of the Conquest of the Air is bloody war, and any slacker in the camp, or any self-seeking humbug trading on other men's work has to be exposed. The Naval Air Service was, indeed, well advised when it decided to trust the judging of its aeronautical matériel to its own properly trained and thoroughly experienced engineers instead of to the jobbed appointees of the R.A.F.

As to my regret that the designer of F.E.2 was not the passenger. Two wrongs do not make a right I know. But it will be remembered that last week a prominent Conservative M.P., a member of the "Gentlemanly Party," please note, asked Mr. Churchill and Colonel Seely not to fly, and offered to supply a list of others "who could better be spared" who might fly in their stead. I take it, therefore, that my regret that the wrong man was killed is not outrageous.

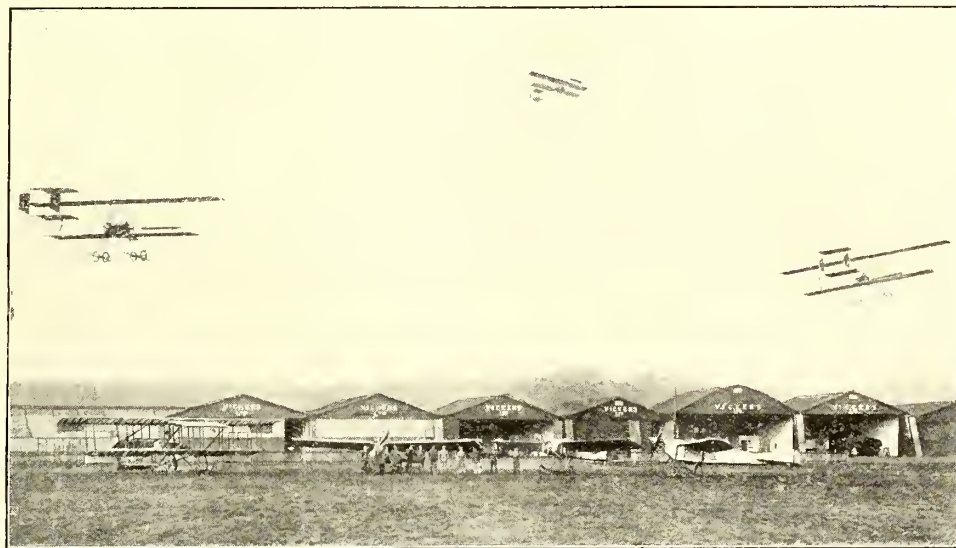
Finally, as to "lack of perspective," the fact that the published views of this paper on every subject connected with flying, naval, military, civilian, constructional, aero-dynamic, and so forth, have in almost every case proved exactly correct, suggests that the combined perspective of the staff is rather good.—C G. G.



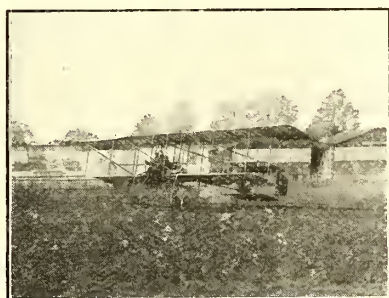
LEARN TO FLY



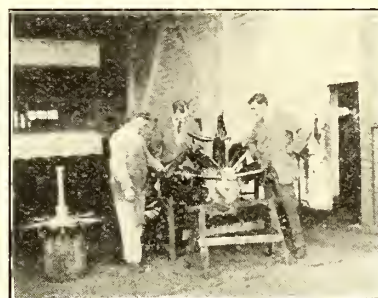
AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS Flying School, Brooklands



Instruction on the Bip'ane



Instructing Pupils in Aero Eng'ne



Chief Pilot Barnwell

VICKERS, Limited,
AVIATION DEPARTMENT,
VICKERS HOUSE, BROADWAY,
WESTMINSTER, S.W.



Assistant Pilot Knight

The Supplementary Army Estimates.

BY W. E. de B. WHITTAKER.

"Everybody concerned dislikes Supplementary Estimates—the Government because they take up Parliamentary time and give opportunities for criticism; the Chancellor of the Exchequer because he has to find the money long after his Budget arrangements have been made; the House because it has an uneasy idea that the Estimates originally laid before it did not contain a frank and full provision for the programme of the year." This is the view of one of Colonel Seely's permanent officials at the War Office, Mr. Charles Harris, Assistant Financial Secretary. There is no question of its accuracy of view, as a little study of the minor political history of the past fifty years will show.

There are occasions when Supplementary Estimates are justified, when unforeseen expenses have arisen during the financial year. It has happened on many occasions that departmental policy has had to be altered half way through the year and additional expense has been incurred that could not have been foreseen by even the most prescient of Secretaries of State. And as it is "only people who look dull who ever get into the House of Commons and only people who are dull who ever succeed there," it is obvious that one cannot look to such as Colonel Seely for intelligent prophesy six months before the event. But, on the other hand, a plan of action, whatever it may be and whatever its future may hold, has certain obvious expenses which should be provided for in the beginning. Those who initiate the plan may desire to carry it against opposition by reason of its alleged cheapness and may therefore struggle to exist for a season on insufficient money rather than face the true situation at once and in a manly fashion. This is a species of cowardice which, hardly distinguishable from incompetence, proves a man unfit for the position he holds. It would be better if the Secretary of State confessed in the beginning that he was unaware as to the possible limit of expenditure and warned the House that a further call would be probable.

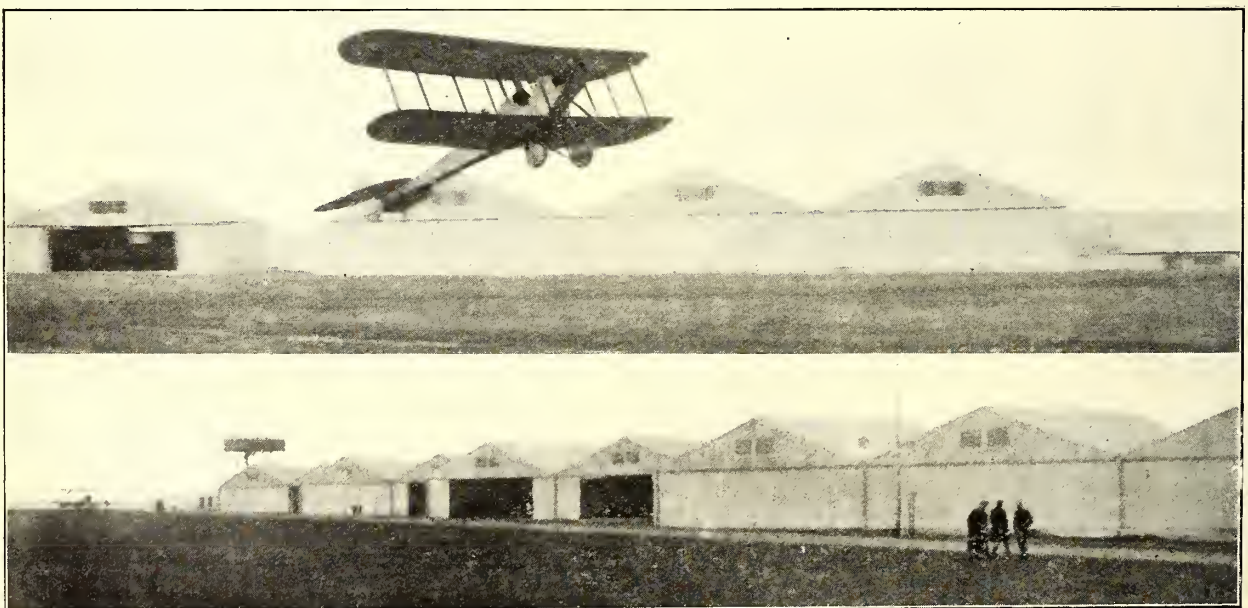
Money was demanded for aeronautics by an influential party in the country, which, unconnected in any way with the prosperity of any industry, had the true interests and safety of the country at heart. A sum was named which in the opinion of those experts whose training and studies have made them best qualified to judge, was sufficient to provide a nucleus aerial force and insufficient to fulfil all requirements.

This sum was considerably larger than that set aside by the Government for such purposes during the past year. The First Lord of the Admiralty pointed out the probability of a further request later in the Parliamentary year, but the Secretary of State for War was complacently sure in public that his provision was adequate. Yet in his heart he must have known that unless he deliberately delayed matters more money would be required, and that too before half the year should have passed. And required it has been.

The total Vote for military aeronautics last year amounted to £501,000, of which only £190,000 was set aside for the purchase of stores and materials—this including all aeroplanes bought. Out of this money had to come all the material used in experimental work at the Royal Aircraft Factory and such not inconsiderable items as alterations and addition to the small but costly dirigibles which, until recently, were attached to the Army.

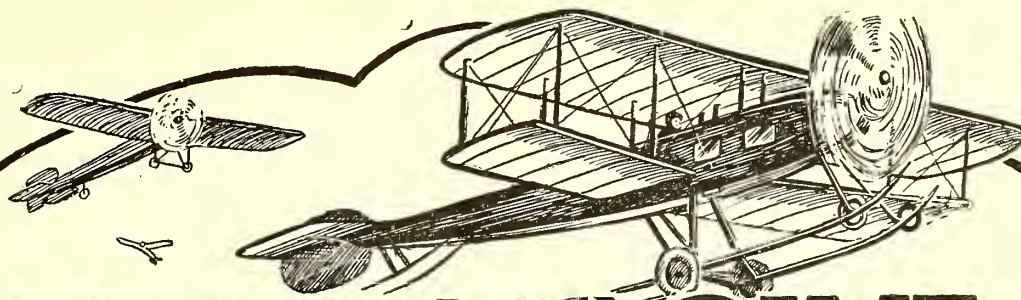
It is clear now, and was clear then, that there was not sufficient money to pay for the aeroplanes required to equip even the few squadrons already in existence on paper, and that such questions as reserve aeroplanes must be left for better days when war threatened and money was easier to get. And, even out of the inadequate sum asked for, the aeroplanes for school use at Upavon had also to be purchased. It is inconceivable that Colonel Seely did not know this in the beginning. Still the criticism of his own party was delayed and the Opposition was too full of other matters to make much difference to the trend of affairs.

A Supplementary Estimate of £216,000, "Vote 9. Armaments, Aviation, and Engineer Stores."—At first sight it would seem as though this money was intended to supply those aeroplanes required already for existing squadrons and that all this sum should be expended in materiel for use in the first line. But no, the old airship squadron is to be replaced by one of aeroplanes, and that, too, consisting of aeroplanes of a particular design capable of exceptional speed. "Those aeroplanes are of special type and designed for a special purpose. They are being constructed at the Royal Aircraft Factory and they will shortly be ready. There will be three flights of them . . ." Each one of these aeroplanes, though it is not stated officially, will cost the country not less than £1,400. This means that for the twenty-five aeroplanes required for



Mr. de Havilland, of the Inspections Department of Military Aeronautics, leaving the new sheds at Netheravon. Below is a general view of Squadron 3's sheds.

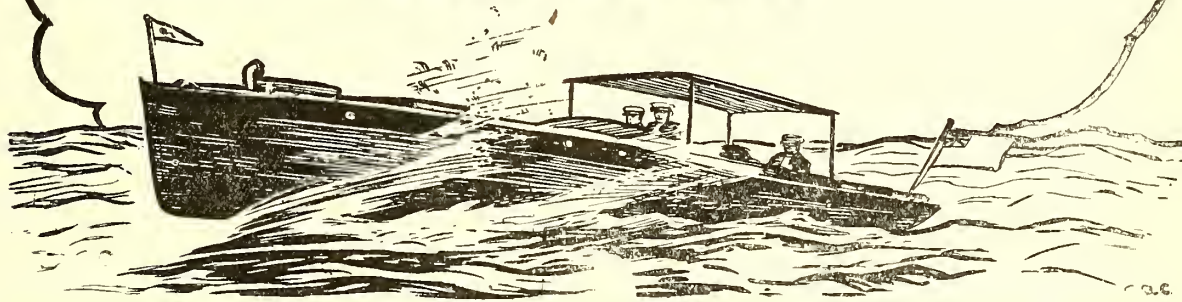
UNDER THE PATRONAGE OF H.M. THE KING.



AERO & MARINE EXHIBITION OLYMPIA

Organised by the
Society of
Motor
Manufacturers
and
Traders Ltd.

Supported by
The
Royal Aero
Club.



Of exceptional Interest

Open

10

to

10

Band of
H.M.
Coldstream
Guards

Aircraft, Marine and
Rivercraft :: Aero,
Marine and Stationary
Engines & Accessories

**MODEL EXHIBIT by THE
ROYAL AERO CLUB**

March
16th to 25th

Admission

1/-

Popular lectures
on aviation, free
cinematograph
displays

Caterers :

J. Lyons &
Co., Ltd.

this squadron an expenditure of at least £35,000 will be essential.

The creation of the Inspection Department is also a matter of some expense which could reasonably be expected in the early part of last year. But the amount spent on this is negligible when compared to other things. The Royal Aircraft Factory, never the most economical of institutions, has not amended its ways as it has acquired age. Each day the staff gets larger and each day its sphere of influence widens. Over 1,000 men are employed at this establishment at the present time and the staff has increased largely also. The staff cost £3,100 per annum at the rate allowed for in March and the wages of the workmen amounted to £40,300. Under present conditions the staff cannot be receiving far short of £5,000 a year, whilst the wages, allowing each man an average of £1 10s. a week, must be at least £1,500 a week, or £78,000 a year. Of this sum it is reasonable to assume that a large proportion is to be borne out of the Supplementary Estimate just demanded. Even on this very moderate assumption as to the increase in wages at the R.A.F. there is an additional £38,000 to be paid beyond that originally arranged for in the beginning of the financial year.

The additions to the staff and workmen at the Factory has been made necessary owing to the increased number of machines in course of construction at that place. Thus by usurping the position of the private manufacturers the expense of the R.A.F. to the country is much higher in the end than would be any aeroplane of similar attributes but built by a private firm. When the Factory prepares a price for the War Office the item Establishment Charges is always grossly understated. Thus the price paid does not represent the expenditure incurred, much of which in consequence must be placed at the door of other pieces of construction. It is safe to say that if the R.A.F. spend £1,500 in the design and construction of an aeroplane any private, well-managed firm could do the same work for about £1,200. The R.A.F. has no such charges as advertising and experimentation in the commercial sense. In a private firm the cost of experiments must be met by the profits on the sales of the improved aeroplane. In the R.A.F. the experimental side is paid for separately and does not form any part of the charge on each machine produced for Government use.

Colonel Seely spoke in the course of his speech of possessing at the present time 161 aeroplanes, one half of which, according to his now conservative reckoning, are ready to take the air at this moment. Of these, between thirty and forty are attached to the Central Flying School, and are, therefore, not immediately available. Thus, accepting his own words, the country has not more than sixty aeroplanes with which to equip seven squadrons of the Royal Flying Corps. But Colonel Seely does not propose to bring the eight squadrons up to

establishment before the end of the coming financial year, and then only with the assistance of the next Estimates. The squadrons will not, even then, be complete, as Colonel Seely does not think there is time to adequately equip the squadrons with "mechanical transport and so on." It will be found in the end that my estimate of last year that approximately £900,000 would be required to complete the work of organisation during one year by a civilised Power is not too excessive.

The supply of mechanical transport for the R.F.C. is almost as expensive a matter as equipping the squadrons with aeroplanes, and it is at least as difficult if proper trouble is taken. It is certainly far too important to be classed in the "and so on" section of a speech.

It is possible to admire the slowness with which the entire corps has been organised. It can no doubt be argued that to "hasten slowly" is the surest way of attaining efficiency. But war is always a matter of initial speed. He who strikes first has the greatest chance of victory should all other things be right. Had perchance some inconsiderate neighbour of this country declared war we should have been at a very considerable disadvantage. It is never good policy to save money on preliminary organisation. So much time is wasted paring down expenses that nothing is done in the end. There is another mistake into which Colonel Seely appears often to fall. He speaks contemptuously of the difficulties experienced and the mistakes made in France and other countries and takes credit for having avoided the same pitfalls. He should not forget that whatever their faults the foreign flying corps are still ahead of ours in size, and in military aeronautics the number of aeroplanes in use counts for a very great deal.

When one thinks of the events which have led up to the presentation of this Supplementary Estimate one cannot retain any real respect for Colonel Seely. Subterfuge and deception have dominated his policy from the beginning. He has not had the courage to face the obvious position nor has he had the candour to admit his mistake (to give it a pleasant name) when his statements were proved to be—shall we say?—inaccurate.

He has made certain improvements in the R.F.C. and claims certain credit for them, but he forgets that all that he has done to-day ought to have been done six and eight months ago. If a little less time had been wasted on talking of machines that are "two years ahead of any other aeroplane" and more attention had been paid to aeroplanes of the present day, we should not be in such a position of unreadiness and doubt, the aeroplane trade would be prosperous and the supply of machines to the army continuous and secure.

It will be interesting to see what developments the Army Estimates hold for us and whether they show a reduced figure or not.

The Gist of the Debate on the Supplementary Army Estimate.

Colonel Seely is to be congratulated on the fact that in introducing the Supplementary Estimate on Wednesday last his speech nowhere departed notably from strict veracity. From internal evidence one assumes that he had on this occasion relied strictly on his military advisers, and not on other officials, his occasional flights of rhetoric being apparently his own doing.

The following are the chief points made by him, comments being added in brackets:—

The airships and their plant transferred to the Navy were valued at £65,000. Orders have been given that No. 1 Squadron, R.F.C. shall consist of aeroplanes which are being constructed at the Royal Aircraft Factory. The military officers of the airships have been given responsible posts in the Naval Wing (R.F.C.) and airships of such character as may be required by the Army will be held at their disposal by the Navy. The Army has the larger task in the heavier-than-air service. [This is more than doubtful.]

Fifty-two machines have been struck off as useless since July 30th, when it was stated that the Army possessed 113, 100 new machines have been added, so that the total in possession is now about 160. [Possibly this may be true.]

Over 100,000 miles has been flown by the R.F.C. Military Wing since July 30th, and military pilots have been in the air every day except six in that period. [This presumably excludes Sundays.]

High engine power means that engines wear out very rapidly. [Which they do not if they are properly built.] Proposals now put forward will give us an aeroplane service much larger in proportion to our Army than that possessed by any other power. [Yes, but every other Power's army is based on universal service, whereas our standing Army is equivalent to one French army corps.] We are in possession of a military aeronautical service not unworthy of the British Army. [Precisely, but in quantity, though not in quality, the British Army is unworthy of the British Empire.]

Mr. Jeynson Hicks criticised Colonel Seely's speech, and said he was preaching to the converted. If we were at war, the Navy would want all its own airships. He also criticised the manufacture of aeroplanes at the Royal Aircraft Factory, and said that motor manufacturers would not make engines unless they were assured of adequate orders. He pointed out that out of 113 alleged aeroplanes in July, 28 were monoplanes officially considered unsafe. He pointed out that Squadrons

**1914 Two-Seater Seaplane,
504 Type.**

A splendid all - service machine. Quoted as one of the finest, if not the finest, in the world. Can be seen on our Stand.

DON'T FAIL TO SEE

STAND 64

AT

OLYMPIA

1914 Single-Seater, 511 Type.

The very latest word in aeroplane construction — smart — serviceable — compact. Can be seen on our Stand.

NOTHING

BETTER

AVRO

NOTHING

BETTER

Contractors

to the

Admiralty & War Office.

**1914 Two-Seater Gun-carrying
Seaplane, 508 Type.**

Novel features — advanced ideas. Quick climbing. Speedy. Don't fail to see it on our STAND, No. 64.

Contractors

to

Foreign Governments.

A. V. ROE & Co., Ltd.

Clifton Street, Miles Platting, MANCHESTER.

Telegrams: "TRIPLANE, MANCHESTER."

Telephone: 337 FAILSWORTH.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,

AEROPLANE WORKS

AND

FLYING GROUNDS—

EASTCHURCH, ISLE OF SHEPPEY.

Telephone:—9 MINSTER-ON-SEA.

Telegraphic Address:—"FLIGHT, EASTCHURCH."

2, 3 and 4 were not yet up to their proper strength, and that Squadrons 1 and 6 practically did not exist, and that 7 and 8 had not even been formed. The provision for the Royal Flying Corps was quite inadequate.

Mr. Arthur Lee paid a tribute to the ability of the officers of the Royal Flying Corps. He held that the Army should have its own airships. He also wanted to know what provision was made for the home defence army when the Ex-

peditionary Force took all the aircraft abroad. Mr. Lee also suggested that if it was absolutely necessary for members of the Government to go up in aeroplanes he would suggest gentlemen who could be better spared than the Secretary for War and the First Lord of the Admiralty.

Mr. E. T. Baker (Financial Secretary of the War Office) endeavoured ineffectually to reply to the criticisms on his department.

The Naval Supplementary Estimate.

Mr. Churchill introduced the Supplementary Naval Estimate on Monday, March 2nd, with his usual conciseness and lack of superfluous verbiage. No one can quarrel with his statements, which express facts with great accuracy. The following is the text of the section referring to the Naval Air Service:—

We were very late in starting—(Opposition cheers)—the British air service both by sea and by land. A year ago we were very far behind France and Germany in aeroplanes, and were practically unprovided with airships. I believe it will be found that our caution and tardiness in airship construction will ultimately be fully justified. Great progress has, however, been made in every direction by the British air service during the year, and if the House of Commons assents to the provision for 1914-15 which the Government recommend, and which we shall ask for at the proper time, very considerable results, not only of a positive but of a relative character, ought to be attained by the end of that year. The Naval Air Service has now reached a point when, although still in an experimental stage, it has already begun to share the military responsibilities of the Royal Navy, and is about to become an effective factor both in Fleet operations and in coast defence. In these matters the initial outlay is very heavy. Everything has to be provided at the beginning—sheds, plant, appliances, land, as well as the actual instruments of aviation. Although the expense in the first few years will be heavy and although in its embryonic stage you cannot point to any specific reduction under other heads of naval charge which could be made in consequence of the development of the air service, yet I am sure that ultimately the development of the Naval Air Service will be productive of considerable reductions in other classes of naval weapon.

As the result of a thorough examination of what had been and what was being done by other countries, and of the numbers and quality of aircraft, both aeroplanes and airships, already possessed by them, and in view particularly of the considerable new German naval air programme, which was announced after the British Estimates of last year were framed and presented to the House, in view of all these facts, my right hon. friend the Secretary of State for War and I felt it our duty last July upon the representations of our expert advisers to make further proposals to the Cabinet for increasing the air service, and after a very full and, as the House may believe, a very severe and searching investigation of the whole subject,

British Enterprises Abroad.

Entries for the Gordon-Bennett race have been received from Vickers, Ltd., and the Cedric Lee Co. There are now six machines entered, namely, the Sopwith Co., the Avro Co., the Bristol Co., and Vickers, Ltd., one each, and two Cedric Lees, so that it will be necessary to hold eliminatory trials in this country if all the machines materialise, only three machines being allowed to each country. The Sopwith entry will probably be a single-seater "tabloid" with a 160-h.p. Gnome engine. The existing machine with 50-h.p. does 93 m.p.h. with pilot, passenger and three hours' fuel, so that with the bigger engine and no passenger, it should reach 120 m.p.h. at least. The first experimental Bristol speed machine is at least as fast as the Sopwith with a similar engine. Mr. Roe had a biplane of similar type on paper a year or so ago, but he did not go on with its construction as it was considered of no use for military purposes. It will no doubt be produced in a modified form. Nothing has yet been made public about the Vickers entry. The Cedric Lee machines will probably be of the "doughnut" type, assuming that the one now under test eventually demonstrates its practicability.

One learns also that Lord Carbery has entered a Morane-Saulnier waterplane for the Schneider Cup race.

my right hon. friend and I both obtained authority to take what we considered the necessary measures. So far as the Admiralty was concerned, the principal expense has been caused by the provision of airships and airship sheds and the necessary stores and appliances for working airships, in all of which we were almost totally deficient.

A considerable new programme of airship construction has been approved, contracts for which have been already made, and are being and will be executed as fast as possible. We considered it essential, not merely to obtain airships by purchase from abroad, but to interest British constructors in their manufacture, thus bringing to this country, if I may use a phrase which will give satisfaction to hon. Members opposite, the art as well as the article.

A contract has been made with Messrs. Vickers for one large and three smaller non-rigid dirigible airships. The rigid, which is approximately a Zeppelin of the latest type, I mean it is on the same lines and of the same description as the last type of Zeppelin, is being built in England, and a considerable portion of the three non-rigids are being constructed here also. A second large Astra-Torres airship of the non-rigid type has been ordered in France, and will shortly be delivered, and a contract has been signed with Messrs. Armstrong for three large semi-rigid airships of an Italian design, which affords great promise, called the Forlanini. Large sheds have had to be constructed by both firms at a heavy capital outlay, and a portion of this charge is, of course, reflected in the price of the ships. We are building two additional airship sheds, one in the Medway near Chatham, and the other in Norfolk. This programme, though considerable, is modest in comparison with what is being and has been done abroad, and we cannot pretend that it competes effectively either with French or German achievements and exertions. Having regard, however, to our great and growing superiority in the seaplane and in all connected with its development, we consider that the additional airship provision which we now ask the House to approve is, under present conditions, sufficient. The total cost of the eight airships and their sheds is £475,000, of which approximately £200,000 falls in the currency of the present year. All this, together with the additional expenditure on seaplanes, makes a total of £260,000, which constitutes the second main cause of the supplementary estimate I am now charged with presenting to the Committee.

The Slack Fund.

The following is a further list of subscriptions received to date in connection with the above Fund:—F., Leonard's Lodge, £4 19s. 6d.; E. S., Eastbourne, £2 2s.; Integral Propeller Co., £1 1s.; British and Colonial Aeroplane Co., £2 2s.; "Droitwich," 2s. 6d.

The subscription recorded last week per Sergt.-Major Levick should have been stated as from the Warrant Officers and N.C.O.'s Mess at the Central Flying School, Upavon.

The Curtiss-Sperry Stabiliser.

In the Curtiss-Sperry stabiliser the precession of the gyroscopes due to disturbance of the machine operate, through the medium of pneumatic relays, the appropriate control-surfaces. The gyroscopes are kept in motion by electromotors energised by a constant-pressure dynamo and, presumably, an auxiliary accumulator.

Further, Messrs. Curtiss and Sperry are credited with the invention of an adjunct to this stabiliser which will automatically land the machine without the aid of the pilot. Of the details of this refinement they are said to be extremely reticent, which is regrettable; but the device is said to have stood the test of practical operation well.

Naval and Military Aeronautics.

GREAT BRITAIN.

NAVAL.

On Monday of last week the First Lord of the Admiralty was taken up by Lieut. Longmore, R.N., in the 200-h.p. Canton-Unné-Maurice Farman seaplane at Portsmouth, and made two long flights, the machine returning later to Calshot. On Friday, the Sopwith bat-boat (90-h.p. Austro-Daimler) was put through its tests by Mr. Pixton. During the afternoon it was taken out by Lieut. Travers, R.N.R.

The Bristol seaplane is being returned from Calshot to the Filton works, where alterations will be made so that the machine may fly with its tail lower. The Sopwith propeller-seaplane (100-h.p. Anzani) for the Greek navy is now at Hamble waiting to be tested. Delay has been caused by engine trouble. The pinion at the rear end of the crankshaft sheared its pins. Through this pinion the starting-gear operates. The fixing of this pinion seems to be a weak spot, as the Sopwith twin-float Anzani delivered to the Admiralty also failed in the same way.

On Wednesday and Saturday last week the First Lord of the Admiralty flew at Hendon on Sopwith biplane 149 (100-h.p. Gnome), piloted by Lieut. Spenser Grey, R.N. This machine is fitted with dual control, so that the passenger can take charge when desired.

The naval base at Carolina Port, Dundee, is temporarily a land base, as all the flying has been done on Short No. 42 with a land carriage. The sheds are still being put up, but it will be some time before they are ready. They are placed about 100 yards from the banks of the Tay, so that a long slipway will have to be constructed.

On Tuesday of last week Capt. Barnby made a fine flight from Montrose and landed at the port. Flying was done by Major Gordon, R.M.L.I., and Capt. Barnby, R.M.L.I., on the succeeding days, each for about 15 mins. The landing-place is a long stretch of rough ground which is not in the best trim for flying, on one side being the Tay, while the other is lined by telegraph poles. It takes considerable skill to rise and land here, and the officers show much ability in handling their machines.

Pending the reorganisation of the Isle of Grain station on a larger scale, several of the machines there have been flown to Yarmouth, where they will remain for a period. Last week Commander Samson, O.C. Naval Flying School at Eastchurch, flew one of the new "shorthorn" Maurice Farmans (70-h.p. Renault) from Eastchurch to Yarmouth, making one stop on the way. He returned later.

At Eastchurch on Monday 1 Henri Farman, 2 Sopwiths, and 2 Shorts were out. Comdr. Samson, R.N., on Short 3 (80-h.p. Gnome) reached about 9,000 ft. On Tuesday an Avro and a Blériot (the latter with Lieut. Briggs, R.N., up to about 11,000 ft.), 2 M. Farmans and 2 Sopwiths were out. Comdr. Samson left on the new M. Farman (80 De Dion), and landed at Yarmouth. On Wednesday 50 and 100-h.p. Avros, 2 Sopwiths, B.E.'s, and 2 Shorts were up. Comdr. Samson returned from Yarmouth on M. Farman. On Thursday 2 Avros, 2 Sopwiths, Shorts, and B.E.s out. On Friday 2 Avros, 2 Sopwiths, 3 Shorts, Caudron, 2 H. Farmans, 2 M. Farmans, and B.E.s were flying. On Saturday 2 Sopwiths, 3 Shorts, 2 Avros, Caudron, 2 B.E.s, Henri and M. Farman's. Lieut. Davies flew to Cambridge with passenger, returning same day. Comdr. Samson, on a B.E., reached 12,000 feet, record for Eastchurch.

Civilians joining the Naval Air Service are entered as Royal Naval Volunteer Reserve while on probation, and on appointment to the Air Service are gazetted to the Royal Naval Reserve. The fact that the Basingstoke Canal, in the vicinity of Basingstoke, has had no water in it for a number of years probably explains the unofficial designation of "Basingstoke Sailors" applied on occasion to the Royal Naval Volunteer Reserve pilots. It is reported that the R.N.V.R. are busy composing an adequate reply.

MILITARY.

The following communiqué has been received:—

FLYING OF KITES AT FARNBOROUGH.—WARNING TO AEROPLANE PILOTS.—It is notified for the information of all aviators flying

to and from Farnborough that military kites are sometimes flown in the close proximity to the mooring mast and flagstaff west of the Queen's Hotel.

These kites fly at heights varying from 2,000 to 600 ft. and are attached to a wagon on the ground by means of a wire cable. The kites are conspicuous, but the wire, which usually leaves the ground at an angle of 45 degrees to the perpendicular, cannot easily be seen, and special care is necessary in order to avoid it.

War Office, February 28th, 1914.

Official figures have now been received from the National Physical Laboratory of the height reached by Captain Salmond (12,950 ft.) in his attempt on the height record on Saturday, December 13th. It will be noticed that some considerable time has been occupied in checking the figures.

On Monday, owing to storms, no flying was done at Montrose, but on Tuesday Capts. Todd and Longcroft, and Lieuts. Harvey and Rodwell, made local flights on B.E.s. Capt. Dawes and Lieut. Lawrence flew to St. Andrews on M. Farmans for instructional work to Sergts. Baughan and A.M. Taylor. During the following two days the same officers were engaged in district flights, and instruction to Sergts. Jellings, Keszler, Smith, and the two already mentioned was continued by Capt. Dawes on the sands at St. Andrews. Friday was hazy low down, and the machines flew high. Capt. Longcroft (B.E. 229), Lieut. Lawrence (B.E. 226), Lieut. Empson (B.E. 233), all being out.

Saturday was a busy day at the barracks and no flying was done owing to kit inspection, drill, and signalling, and in the afternoon the men were engaged shifting the machines from the temporary hangars to the new sheds, which, though not quite finished, are far enough advanced to hold the machines. The temporary hangars are being packed off to Major Becke's new squadron (No. 6) in formation.

The prettiest sight of the week was a flight on Tuesday by Capt. Longcroft on B.E. 229 and Capt. Barnby, R.M.L.I., on Short No. 42. The Short rose first, but was barely off the ground when the B.E. was after it, the machines circling and doubling each other like a pair of birds. The B.E. was the quickest and did the chasing, while the Short cut in and circled in masterly fashion. Later in the day the Short left for Dundee.

FRANCE.

Our French contemporary, "L'Aéro," forecasts the probable impending developments of the French naval aeronautical service—for which a vote of 8,300,000 francs (£332,000) is to be demanded—as follows:—Fréjus will remain the central training station, and a considerable portion of the vote will be devoted to "equipping this school with airships, hydrogen plant, hangars, and the purchase of seaplanes."

Four war centres will be established—three of them (two seaplane stations and one dirigible centre) will be on the Mediterranean. The fourth will be on the north coast. The sum to be provided seems small, but as the total expenditure to date on naval aviation in France has been only about one-fifth of this, perhaps the French navy is as expert in "appropriating" from other votes as our own has been.

The French Government have decreed (February 21st) that the "direction du matériel militaire" is to be abolished, and that the services heretofore carried out by this department are to be discharged in future by:—

(i) A central department for balloons and airships—which embraces the meteorological and the telephotographic laboratories.

(ii) A central department controlling the purchase of aeroplanes, motors, etc., also the Government repair shops.

(iii) The aeronautical laboratory.

(iv) The aviation laboratory.

And that suitable arrangements be made in regard to personnel.

By a second decree of the same date are created a technical advisory committee who will act as advisers to the Ministry, and an inspection department which will be concerned with the inspection of all new machines, etc., and of repairs.

Commandant Félix, the well-known pilot of the Dunne biplane, has now been ordered to return to his unit of the Colonial Artillery, after leave of absence of three years.

The airship "Adjutant Vincenot" is to be deflated at Toul, presumably for overhaul, and her place is to be taken by a semi-rigid Lebaudy (28,000 metres cube) which has arrived there in pieces.

A good deal of work is now being done at the French naval air station at Saint-Raphael. On February 20th Lieut. Fournié, on his Voisin seaplane, flew from the air station and over the Gulf of Fréjus. The 200-h.p. Bréguet which was flown by M. Moineau at Deauville has been acquired, and will be flown by Lieut. Dutertre, O.C. There is an Astra biplane in the sheds, while the 130-h.p. Caudron hydro which performed at Deauville has also been acquired.

On Sunday (February 22nd) 7 sheds and 13 aeroplanes were destroyed by a gale at the military aerodrome at Bron. These sheds were temporary canvas ones, and some bitter comments are passed in the French Press on the criminal carelessness displayed in so risking valuable property.

M. Brindejone des Moulinais is now doing his military service as a sapper in the French army, where he will fill in his time as a military aviator. He has to relinquish his beloved Morane-Saulnier monoplane, on which he made so many fine flights, and will in future fly a Dorand biplane of the type designed at Chalais Meudon and built by Voisin Frères.

GERMANY.

The German War Ministry has given 20,000 marks, the Admiralty 10,000, towards the expenses of the German Eastern Circuit. The opening-day, June 20th, is the "Round Breslau" flight, the circuit itself commencing on June 21st and leading in 434 kms. to Posen; the second day is the Posen-Koenigsberg stage, 605 kms. There is a rest-day at Koenigsberg and a local meeting. June 24th is the third and shortest flight of 400 kms. from Koenigsberg to Danzig, where the meeting winds up with local flights.

As reported some time ago, the life-saving medal was awarded to Naval Lieutenant Bertram for climbing onto the wing of Sablatnig's aeroplane to rebalance it when an accident appeared imminent. At the landing near the banks of the frozen Havel, Bertram fell through the ice and vanished beneath it, so Sablatnig, clambering out of the machine, went in after him and hauled him out. He, too, has now received the life-saving medal, which he amply earned.

The Zeppelin docks at Friedrichshafen have celebrated a jubilee—work has commenced on the twentieth-fifth aerial cruiser of this type. Both the twenty-third vessel, now on its army tests, and the twenty-fourth, nearing completion, are destined for the War Office, but nothing is known at present as to the destination of the jubilee airship, although it is considered likely it will serve Bavaria. These Zeppelins have 800 h.p. (four Maybach motors of 200 h.p. each).

The twenty-third Zeppelin dirigible, Z. VIII, came out for the first time on February 21st. It is to be stationed at Trèves.

The Zeppelin "Hansa," hired by the German navy, made her first oversea trip on Tuesday, February 24th. Leaving Cuxhaven about 3.30 a.m., she flew to Heligoland and farther over the North Sea.

The Zeppelin airship "Sachsen," chartered by the navy, carried out its first nocturnal journey in marine service on February 24th, travelling to Heligoland and back.

ITALY.

Signor Enea Bossi, the only Italian seaplane constructor, has delivered to the Italian navy a seaplane fitted with double controls specially designed for school work. The machine, which has folding wings, is fitted with an 80-h.p. engine and carries a useful load of 630 lbs. The speed is said to be 54 m.p.h. Lieut. Battagli successfully put the machine through its tests. Three other machines of the same type are to be delivered shortly.

The resuscitated Centocelle aerocamp, where are both monoplane and biplane escadrilles, with an eye for the future housing of the coming "20 inside and 30 on the top" type of aeroplane, has a shed to take eight present-day machines fully erected. Such forethought merits imitation. Chevillard

is to exhibit there shortly to show the suitability of the Savoia-Farman for scientific flying and sensational turns.

P. 5, whose envelope was dispatched—it seems such a short time back—to Rome for overhaul, is now again flying well around Verona, where she is stationed. The older P. series will be, solemnly and with the full honours due to their merits, paid off and laid to rest during the year. After five years of useful life, divided between experimental, active, and training-ship duty, they are now to make room for more modern though perhaps less glorious vessels. They will, no doubt—at any rate, P. 1—be sent to the National Museum.—T. S. H.

TURKEY.

It is reported that a "raid" is to be made upon Paris by the Turkish aviators shortly.

The aeroplane "Prince-Djelaeddin," which is taking part in the Constantinople-Alexandria "raid," left Tarsus on February 25th, at 8 a.m., and arrived at Adana in 30 mins. The other machine, "Monhavéti Millie," was delayed at Beirut awaiting the arrival of an engineer, Mourad Bey. The French Consul at Beirut has presented the pilot of this machine with a spare propeller, left behind by one of the European aviators, which he was very glad to have.

It is with real regret that one records the deaths of Fethi Bey, the Turkish aviator, and his passenger, Sadik Bey, who were killed on their way from Constantinople to Jerusalem. The bodies were found in the partially burned machine, in the neighbourhood of the Lake of Tiberias, and as no one witnessed the accident, its cause can never be known.

The bodies were conveyed to Damascus and were buried near the tomb of Saladin with all the rites of the Moslem faith. Nouri Bey, a brother aviator, who had flown from Constantinople to Beirut, was present at the funeral. Turkish aviation has sustained a severe loss in the death of Fethi Bey, who was a most capable pilot.

Foreign Notes.

France.

The French Aero Club have received three entries each from France, Great Britain, and America, and one each from Germany and Italy, for the Gordon-Bennett race. They have also received for the Schneider Cup three French entries, two English (the Sopwith and Lord Carbery's Morane), and one each German and Swiss.

M. Pégoud is about to test a new looping Blériot which is fitted with a double chassis so that he may land upside down. The wings are said to be absolutely flat, so that they may operate both ways.

On February 25th M. Garaix, on his Schmitt biplane (160-h.p. Gnome), climbed to a height of 3,150 metres (10,350 ft.), with four passengers, at Chartres, thus beating Herr Thelen's recent record.

M. Quinton, the president of the Ligue Nationale Aérienne, is asking French constructors to co-operate in an attempt to bring the duration record up to twenty-four hours.

On February 26th, M. Pequet, accompanied by a passenger, flew from Paris to Pau on a Morane-Parasol in eight hours. The machine was fitted with an 80-h.p. monosoupape Gnome.

Mr. Hamel, ever to the fore with the latest thing, has been flying a Morane-Saulnier monoplane (160-h.p. Gnome) whose speed is alleged in the French Press to be 215 kilometres (133½ miles) per hour! The first flights were made on February 24th at Villacoublay. Mr. Hamel does not vouch for the above speed, but says it is the fastest thing he has ever been on.

M. Maurice Farman has again made an aerial tour, leaving Buc on Saturday morning in a violent wind and arriving at Tillières that evening. On Monday he arrived at Evreux with his daughter on board, and during the afternoon gave many passenger-flights. He returned from Evreux to Buc on Tuesday, bringing with him Mme. Farman.

M. Marc Bonnier, after a three-days' wait for rain, left Marseilles on a Nieuport monoplane at 12.6 p.m. on Saturday (February 28th) with his mechanic, arriving at Bron (Lyon) at 3.45 p.m. He proposed to leave Bron on the Sunday for Etampes and to finish his flight on Monday, March 2nd.

The "Ligue Nationale Aérienne" have now arranged 31 signals, inscribed on the roofs of large buildings, or on gas-

NIEUPORT (ENGLAND) LTD.

Armoured Destroyers for Fighting
Airships.

Fast Monoplane Scouts.

Two-Seater Military Monoplanes

Hydro-Aeroplanes.

Skimmers.

OLYMPIA SHOW
Stand 65

Write for full particulars to the Managing Director :

MR. ALBERT PICARD,

45, Gt. Marlborough St., W.

Telegrams :

NIEUPLANE, LONDON.

Telephone :

REGENT, 5210 (2 lines).

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS

for the building of

HENRY & MAURICE FARMAN

Aeroplanes

AND

Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :

47, VICTORIA STREET, S.W.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
is thoroughly equipped and
Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

WHITE and THOMPSON Ltd.

SOLE CONCESSIONAIRES

FOR THE

CURTISS

FLYING BOATS

and ENGINES

IN THE UNITED KINGDOM
AND THE
BRITISH COLONIES

MIDDLETON, BOGNOR, SUSSEX

Telephone—

48 Bognor

Telegrams—

"Soaring," Bognor

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

holders, for the guidance of aviators. These signals take the form of two numbers inscribed in large letters, the first of which gives the latitude and the second the longitude of the spot marked, apparently, however, according to some special scale, as the examples given do not agree in any way with the actual latitude and longitude of the places to which they are attached.

M. Bielovucie, the famous pilot of Voisins and Hanriot, will fly a Morane-Saulnier in the big events of 1914. By way of preliminary training he has already performed 30 loops. M. Audemars has also come out as a loopist, and has performed this feat with about 20 passengers, among them Prince Mourroussi, chief of the Sebastopol Aviation School, and M. Brindejone des Moulinais.

On February 12th, M. Jean Ors experimented with a parachute at Juvisy. He ascended with the aviator Lemoine on a Deperdussin monoplane, 100-h.p. Anzani, to a height of 1,000 feet, seated on the wheel axle of the machine. From that altitude he let himself drop, and landed safely after a descent lasting 39 seconds. He says it is now his intention to perform a similar descent accompanied by a passenger, and that he proposes afterwards to test a parachute of 300 square metres, guaranteed to open in three seconds, and support at once the weight of the pilot, passenger and machine, a total estimated weight of 600 kilogrammes.

M. Quinton, president of the Ligue Nationale Aérienne, is applying to the police and the proprietors of the Eiffel Tower for permission to test an incendiary arrow therefrom. This has been invented by an aviator of the martial name of Guerre. The infernal machine consists of a vessel full of petrol fixed to a shaft. The apparatus, which is 3 in. diameter and 15 in. long, bursts into flame when the shaft sticks into anything, and it would therefore be a very uncomfortable missile for the crew of an airship if one alighted on the envelope. Experiments are also being made with a Blériot at Buc.

M. Poulet, accompanied by Mme. Richer, on a Caudron (60 Gnome), left Crottoy on Saturday, February 21st, and landed at Zurich.

His friends in England will be glad to hear that little M. Grandseigne, formerly with the Bristol firm, is once more flying, and that on the 9th ult. he flew from Issy-les-Moulineaux to the aerodrome at La Vidamée on a Clement-Bayard monoplane.

The General Aerial Transport Company are starting a passenger service on business lines at Mentone. M. Labouret is at work with an Astra-Nieuport biplane. Tickets may be taken for Monte Carlo or for Nice.

As was recorded recently, M. Garaix beat the world's Height Record with six passengers on a Schmitt biplane. The total weight of the pilot and his passengers was 477 kilogrammes (1,050 lbs.). The machine also carried 150 litres of petrol and 40 litres of oil. It is alleged that the first 1,000 metres (3,300 feet) was reached in 10 minutes, and the greatest altitude (1,850 metres—6,000 feet) was attained in 27 mins.

There appears to be some ground for suspicion that a group of speculators in France are acquiring the land surrounding certain aerodromes which it is known that the Government will have to extend. Unfortunately, few speculators in England have sufficient faith in the future of aviation to plunge in it to even this extent, or is it merely fear of Mr. Lloyd George's increment duty?

The Concours de la Sécurité en Aéroplane continues to provoke discussion in the French press. Various constructors and pilots express their belief in their pet "appareils," but all seem to agree as to the impossibility of carrying out the functions of the Concours to the satisfaction of anybody. It is noticeable that the French constructors and pilots appear much more enthusiastic about "gadgets" than do the corresponding class in England.

The executive committee of the Aero Club of France, in session on February 16th, with M. Deutsch de la Meurthe in the chair, voted a medal of honour for the French Minister at Cairo in recognition of his services to aviation. At the same time they censured the conduct of Jules Védrines, and regretted that he should have had the bad taste to behave as he has done.

M. Bonamy has constructed a weird monoplane at the Ponnier works with the idea of attaining both lateral and longitudinal stability. The machine has two pairs of wings in tandem, the front pair having a pronounced dihedral, while the rear pair are swept back on the broad-arrow lines. The fuselage and chassis are on Hanriot lines. MM. Bielovucie, Emile Védrines and Alfred Ponnier have all tried this novel machine and pronounce it very satisfactory. A 70-h.p. Gnome motor is employed. It is said that the machine is to be entered for the "Security Competition."

On March 1st, M. Pierre Wroblewski, more commonly known as Salveize, was killed at Ambérieu. His brother, Gabriel, who was passenger, was seriously injured.

M. Effimoff, the Russian aviator who used to fly a Farman in the dark ages, has looped the loop on a Blériot at Buc.

Germany.

Flights of great length continue to be made in Germany. On February 19th, Herr Basser, the Rumpler pilot, flew for 10 hrs. 6 mins. without alighting, on a pigeon-type monoplane. Starting from Johannisthal at 7.30 a.m., Herr Basser flew over Frankfurt, Bingen, Cologne, and Duisburg, finally landing at Wanne. The machine was fitted with a 100-h.p. Mercedes motor and carried 95 gallons of petrol.

The German aviator Breitbeil was advertised to make a flight "à la Pegoud" on Feb. 18th, but owing to the inclemency of the weather the Fatherland had to postpone the acquisition of a loopist.

On February 19th Herr Linnekogel beat the German height record, rising with a passenger to 4,300 metres (about 13,900 feet). Then the lubricating oil froze and Herr Linnekogel glided to the ground.

The Aviatik firm are entering a biplane for the Monaco rally, which will be piloted by Herr Ernest Stoeffler, the brother of the famous "recordinan." The machine is to be fitted with a 150-h.p. Benz. It is also said that the Gotha firm will compete.

The authorities at Strassbourg have forbidden French aviators to give flying exhibitions in Alsace.

Johannisthal has again been the scene of a collision between two aeroplanes with fatal result. The catastrophe occurred on February 10th at 9 a.m. Whilst a pupil of the Sportflieger Company, named Degner, was flying on a 75-h.p. Etrich, at about 50 ft., Sedlmayr, the well-known L.V.G. pilot, steering a biplane, with Lieut. Leonhardy as passenger, passed beneath him just as Degner, who could not see the overhauling aeroplane under his own, commenced to land. The Etrich-Taube, in its descent, struck the biplane, and both machines dashed to the ground, falling on their backs. Degner was killed at once, the others escaped, Sedlmayr with a fractured thigh, and the officer with a broken nose. The papers point out that the scene of the collision is that of the disaster to Captain Jucker and Dietrich and to Hielscher, and demand an alteration in the landing and starting places, else similar fatalities and numerous minor accidents will occur repeatedly. It will be noticed that the form of the accident was identical with the collision between Thomas and the late Captain Dickson at Milan and the result exactly opposite.

Mischewski, of the D.F.W., had an unpleasant experience. Intending to fly to Königsberg, he left Leipzig on February 8th on a 75 G.P.-D.T.W. monoplane, but must have lost his way near the Russian frontier, and landed, as luck—or the reverse—would have it, near Pultusk fortress during the afternoon, where he was promptly arrested. His journey was about 680 kilometres. Telegraphing home, the Leipzig works immediately placed themselves in communication with the German Foreign Office for his release. At the time of writing no news of his return had arrived.

The unfortunate German aviator of the Slavonic name of Mischewski, who was so tactless as to land at Warsaw, is still being kept in close confinement by the Russian authorities on a charge of espionage. An enemy of this paper, who is a billiard player, remarks that his landing evidently was a "mis-cue."

Willy Rosenstein, the Gotha-Dove pilot, carried his mother as passenger when ascending for his three thousandth flight last week.

The circuit of South Germany is to take place between October 10th and 15th next. The itineraries are Nuremberg,

Regensburg, Augsburg, Munich, Friedrichshafen, Stuttgart, Marburg, Kitzingen, Schweinfurt, Thuringia, Hof, Bamberg and Nuremberg.

Experiments have been carried out at Johannisthal with a luminous signal for night-work. Two pilots went to a great height in the dark and successfully signalled with the Morse Code.

M. Berliner, a German balloonist, has been captured by the Russians and incarcerated at Perm.

Prince Frederick Siegmund of Prussia is constructing two machines for the Prince Henry flight; his workshops are near Danzig, and a flying school for gentlemen aviators only will probably be opened in connection with his work.

The rules for the "Northern Sea Flight," as the international event arranged by Scandinavia and Germany will be officially called, have now been definitely fixed, and include Sweden's participation after all. Instead of Warnemuende, Schwerin will witness the start, on August 21st, at 6 p.m. The first stage is to Warnemuende; then on August 22nd, Warnemuende to Copenhagen; August 23rd, Copenhagen-Malmö-Helsingör-Aarhus, without an intermediate landing; August 24th, rest-day; August 25th, Aarhus to Aalborg or Skagen; August 26th, rest-day; August 27th, Aalborg or Skagen to Gothenburg; August 28th, Gothenburg to the first Norwegian stage; August 29th, rest-day; August 30th, to Christiania. The event is open to aviators of all nations. All types of water-aeroplanes are eligible, each to carry a passenger and lifebelts for pilot and passenger. It must be possible to start the motor either from the pilot or passenger seat. Entries close at single fees on July 15th, at double on August 1st.

Otto Breitbeil, whose acrobatic performances have caused much sensation among his fellow-pilots at Johannisthal, had a severe accident the first time he attempted to produce himself to the public at large, February 22nd. Ascending to 400 metres and doing several curves almost on end, he intended to dash down perpendicularly, right himself close above the ground and land, but he must have lost control, for the aeroplane, an L.V.G. 100-h.p. biplane, turned over on the ground. Breitbeil was flung out of his seat and broke his right thigh, though the damage done to the machine was very slight. Breitbeil, who was fully conscious when picked up, accounts for the accident by a slight attack of vertigo at the critical moment.

The National Aviation Fund announces that, owing to the tremendous activity of aviators, the money set aside on December 18th, 1913, is nearly exhausted, and that therefore the new programme of prizes for town-to-town and other flights issued at the end of December has to be annulled. But until assistance is procured, a new set of regulations has been published, halving the single prizes, but not touching the monthly incomes, and fixing the total value of all prizes at 150,000 marks (£7,500), instead of 800,000 (£40,000). In the meantime, the Conservative Party in the Diet is considering ways and means to replenish the Fund and uphold Germany's pre-eminent position.

In January 112 pilots made 2,398 ascents on 29 days at Berlin-Johannisthal. The duration total was 318 hrs. 20 mins. Ballod, Jeannin-Dove, topped the list with 159 ascents and 19 hrs. 5 mins. 11 men took the ordinary brevet, and 11 passed the field-pilot examination.

The Swiss Military Aviation Commission, consisting of three colonels, a major, and the Alpine pilot, Bider, was in Berlin recently to inspect the various flying-grounds and works.—B.

Austria.

The Austrian Aero Club is organising this year, in addition to the circuit of Austria, for prizes of a total of 200,000 kronen (£8,300), the third International meeting at Vienna. This meeting, lasting a week, will occur in the latter half of June, while the Circuit occurs in April.

Italy.

An Aerial Locomotion Show will keep up Turin's good record as "Showville" during May. I am not in possession of full details, as such are not settled yet; but I believe it is not international. As for the Brescia Car and Aeroplane Circuit fixed for the early days of September, I will guarantee it to keep its organising committee quite occupied from now

onwards. It is, I consider, premature to announce anything just yet.

Pégoud will not probably have pleasant memories of Milan, where he looped on Sundays, February 15th and 22nd. He had to be held to what those interested considered his contract as to flying on the last Sunday, and was prevented from exhibiting himself on the intervening Thursday, to the great loss of gate due to loss of interest and bad weather, on Sunday, 22nd. He, however, succeeded in disposing of his looping machine to Dal Mistro, and we get here onto delicate ground.

It appears quite certain that an Austrian mechanic left M. Pégoud's service on the day that the deal was done, and accused his late employer of having tampered with the petrol supply arrangements after the machine had been consigned to its new owner. Pégoud says that his head mechanic did remove certain parts which he had himself fitted, and thus only sold the aeroplane as turned out and considered suitable for looping by the French factory. It sounds quite likely that an expert should have ended his motor with special tune to allow of his rather special performances, and he was naturally not out to sell his own secret. He would have been wiser to remove his improvements in carburation before handing over the machine to Dal Mistro. According to all accounts, he left the remains of his special contrivance in the case—so that the prevalent German has probably grasped its principles and patented it by now! It would seem to be calculated to guarantee rapid acceleration, and consisted of a weight added to the flexible petrol intake within the tank. I heard that Dal Mistro paid 22,000 francs for this "sack of trouble," as we say colloquially here.

The pretended sabotage scarcely seems to be in M. Pégoud's interest as a vendor of looping Blériots, but perhaps he will be credited with intending his own financial suicide—in the present excited state of the reporters. Meanwhile, the poor, accused Frenchman returning from Austria offers to loop on the mutilated Blériot. There is such a thing as a school 'bus for beginners; even loopers, when beginning, may need protection against excess.

Parmelin's daring defiance of the intense cold in crossing Mont Blanc will evoke everyone's admiration, but the small voice will ask, "Why in this exceptionally rigid season?" I see that grease was applied both to his skin and his clothes, and that he found it necessary to consume all the oxygen which he had with him. The builders of his 80 le Rhone motor (which, by-the-by, a local journal reports as consisting of 9 cylinders and 2 pistons) seem to be likely to get the most practical benefit from the feat. The Swiss fliers certainly understand mountain work, and it is hard luck that Parmelin, being married, should therefore be barred from serving in their National Aviation Corps. The Dep. is of the monocoque type, an old mount, due to Parmelin's own brains, it would appear.

He exhibited on the same machine, and Manissero looped at Turin on the 15th ult. in favour of the Anti-tuberculosis League.

Cevasco is back at Cameri, where things are again looking up, to my great joy. The Gabardini monoplanes and water-monos will be built there, and Cevasco still caresses the Montenegro trip projected for Christmastide. It is no doubt better to deliver Easter eggs than drop such a sporting trip.—T. S. HARVEY.

Russia.

On February 27th the Russian designer of char-à-bancs, Sikorsky, made a flight of 18 mins.' duration with 16 passengers on board. The weight of the inhabitants of this flying village was 2,640 lbs., or nearly a ton and a quarter. A still more sensational performance was a cross-country flight in the neighbourhood of St. Petersburg, which lasted two hours and six minutes. Besides the pilot, there were eight passengers on board, and an altitude of 3,000 ft. was maintained. Of course, this constitutes a record for both duration and altitude for a crew of nine.

The general dimensions of this interesting machine are: span, 114 ft.; length, 62 ft.; surface, 1,820 sq. ft.; weight empty, 8,250 lbs.; gap, 9 ft. The machine is fitted with four Argus motors of 100 h.p. each, and provision is made for the fitting of a fifth.

The aviator Janoir, who is to attempt the Paris-Pekin

voyage, will start in the middle of April. The route passes via Samara, Tchelabinsk, Omsk, Tomsk, Irkoutsk, Harbin, Inkoon and Pekin, a total distance of 11,000 kilometres (about 7,000 miles).

Scandinavia.

As the result of Chevillard's tour to Denmark, Sweden, and Norway, all the naval and army aeroplanes, except for two Leveque flying-boats, have in Denmark been purchased from the Farman Frères. The navy has two Henri and one Maurice Farman biplanes, and will in a short time probably take over one Henri and one Maurice Farman seaplane; and the army possesses, beside the B.S. Danish-built monoplane, an H. and a M. Farman biplane.

In Norway there are a German Grade monoplane (private owner), a Rumpler-Dove seaplane (the navy), a French Deperdussin (private owner), and in possession of the navy and army a Blériot and several H. and M. Farman biplanes.

In Sweden, two Blériots (private owners), three H. Farman biplanes (private owners); navy and army, one Blériot, one Nieuport, one Bréguet, and several H. and M. Farman aeroplanes and seaplanes. And the reason why the Farman Frères dominate in Scandinavia: Chevillard's brilliant flights here. Perhaps you know that last year one spoke of a visit to Scandinavia by half a dozen British aeroplanes. Will they come over this year? There is much work to be done, both exhibition flights and business.

At the annual meeting of the Danish Aeronautical Society the cups for the highest and the longest flight will be presented to Lieutenant Ussing.

Concerning the Northern sea-flight, the following has been established:—No less than ten entrances are to be received or the flight will take place later. Every competitor must be insured against accidents for 100,000 francs and against catastrophes for 300,000 francs, or the organisation will take care of this for 150 francs. The entrance fee is 600 francs, 300 of which are paid back at the start—that is, if the machine has flown for 10 mins. before 24 hours after the official start—and the rest at the arrival at Copenhagen. The office of the flight is at Copenhagen. The Farman Brothers will enter a Henry and a Maurice Farman waterplane.

All the flying world here is greatly astonished by Mr. Raynham's wonderful glide from Brooklands to Hendon. Congratulations for it to him from here.

The well-known Danish-American aviator, Silas Christoffersen, who has constructed a flying-boat, of which Roald Amundsen has bought two for his North Pole expedition, has fulfilled a big flight which has brought him much admiration. In a very strong wind he flew from San Francisco to San Diego, and from there over the mountains to Los Angeles.

The Danish aviator Seth-Jensen, who last year flew 900 km. from Villacoublay to Bavaria in a strong head-wind for the "Coupe Pommery" on a 60-h.p. Clerget-Clément-Bayard monoplane, has now been engaged as chief pilot instructor for their Villacoublay school by Morane-Saulnier.—Hi.

Switzerland.

Lt. Sugrin and M. Adolphe Montalvan are asking the Federal Government for a concession for a passenger carrying service over Lake Geneva. Ouchy will be the headquarters of the hydroaeroplanes, and the fares will vary from 50 francs single, 75 francs return (from Ouchy to Evian), to 400 francs (one passenger), or 600 francs (two) for a circuit of the Lake. As a complete circuit is at least 100 miles, this latter charge appears to be very low. It is also proposed to carry letters. A three-seater Henri Farman (80 Gnome) and a two-seater Maurice Farman (75 Renault) are to be employed in this service.

M. Henri Kramer has just brought from France a Henri Farman with a 60-h.p. Oerlikon motor which the Société Suisse de L'Aviation have fitted with floats for passenger service on the Lake of Geneva. M. Dufour has been flying on his machine at Geneva, but has not a sufficiently powerful motor to carry passengers.

Egypt.

MM. Guillaux and Chevillard were doing some fine exhibition flying at Cairo about February 22nd, the former doing twelve consecutive loops in one descent. Our Egyptian corre-

spondent says that, so far as he can gather, M. Guillaux was not solely responsible for the regrettable incident over the Pommery Cup flight, and that Guillaux himself is a very quiet, decent individual, which is more than can be said for some of the popular aviators.

M. Guillaux is reported to have performed no less than 160 loops during the course of a single flight on February 22nd at Cairo. One awaits confirmation with interest, as this may be merely an example of the Egyptian journalists' idea of veracity.

M. Guillaux, who left France for Egypt some weeks ago, has been looping the loop at Cairo. The Egyptian correspondent of the "Times," reporting an incident, says: "When he was upside down at a height of 2,000 ft. from the ground his motor suddenly stopped and the machine began to fall. Guillaux, however, managed to right himself at a height of 1,000 feet, and making a wide detour landed safely. The incident naturally caused great excitement among the spectators, but the airman himself remained calm and never really lost control of the machine." It may interest the "airmanship experts" of the "Times" to know that every engine always ceases firing on the top of the loop, except one or two that have a special tank arrangement to prevent it, and even these miss badly. In the other cases the engine never begins firing again till the machine is in something like the ordinary flying position.

M. Marc Pourpe's flight from Heliopolis to Suez was along the old military road, and his landmarks were the watch-towers erected by Napoleon!

On February 23rd M. Marc Pourpe, on his Morane-Saulnier monoplane, 80-h.p. Gnome, arrived at Heliopolis at 10.30 a.m., thus completing his 5,000 km. (3,000 miles) flight from Cairo to Khartoum and back. The journey started on February 3rd and therefore occupied nearly a month.

Mr. Frank McClean, who was delayed at Assuan owing to trouble with the 160-h.p. Gnome on his Short waterplane, arrived at Wadi Halfa on February 19th. The engine has been consuming too much petrol and overheating badly.

Mr. Oswald Watt, Captain in the Australian army, flew his Blériot (60-h.p. Gnome) at Heliopolis on February 14th, and thus became the first British subject to fly in Egypt—and his hangar is the first in Egypt to fly the Union Jack. One does not forget Mr. Mortimer Singer, who was, one believes, born an American citizen. Mr. Watt has with him as assistant and instructor Mr. Samuel S. Pierce, an American, who in 1909 built at Colorado Springs, U.S.A., one of the first monoplanes in the States. He came to France in 1910 and has been connected with the Blériot firm ever since. Incidentally, he speaks French, German and Italian, and Servian, which last he picked up with the Servian army during the Balkan War, where he had charge of some Blériot machines. Mr. Pierce is said to be an excellent, steady flier, and a very good instructor, which, with his linguistic accomplishments, should make him a valuable asset to his firm. He and Mr. Watt will doubtless do much to show the Egyptians that flying is not solely a French sport. Mr. Watt's Blériot is the one shown at the French Aero Show in December.

Details to hand concerning the accident to M. Olivier at Abassieh, recorded in an earlier issue, show that attempting a flight with two mechanics as passengers his path was impeded by Arab spectators and that although then some three or four feet off the ground he was unable to clear the crowd and drove the machine into the ground to avoid them. The machine was destroyed, but M. Olivier and his passengers escaped unhurt—though one mechanic complained of "lively griefs" in his legs.

The skimming-boat illustrated herewith is the property of M. Jacques Schneider, of "Cup" fame, and was built for him to the designs of the Comte de Lambert and M. Tissandier. It is fitted with a Salmson motor of 100 h.p. Among the passengers recently carried on it was Lord Kitchener of Khartoum, who may be seen in the photograph seated by the left-hand of M. Schneider, who is at the wheel. The photograph was taken by a friend of this paper, to whom Lord Kitchener kindly gave special permission for it to be reproduced in THE AEROPLANE.

It is understood that M. Roux, failing to get satisfaction

from Jules Vedrines by means of pistols for two, coffee for four, is taking police court proceedings against him for assault.

U.S.A.

One hears that the late Prof. Langley's monoplane is to be fitted with a modern engine, and that Lincoln Beachey is to test it. This is of some interest, as this machine has many promising points and was dogged by the worst of ill-luck in its early days.

The Aero Club of America are organising a seaplane race between New York and Boston, a distance of about 600 miles. The competitors may not land between the point of departure and the goal.

At Hammondsport, N.Y., January 28th, Raymond V. Morris flew a new flying-boat, designed by Mr. Glenn H. Curtiss, and said to have been built for the Italian Navy. The machine differs from other Curtiss flying-boats in having an entirely enclosed cockpit, seats arranged in tandem, and an oddly-shaped hull intended for deep sea work. Of the operators nothing is visible when the folding hatches are closed over the cockpit. They are provided with celluloid windows, and are so sheltered that waves washing entirely over the craft would not touch them, nor swamp the boat. The boat is much longer and higher in the bow than previous models of Curtiss boats.

The new machine left the water very quickly, climbed well with a useful load of approximately 800 lbs., and showed a mean flying speed between 60 and 65 miles per hour.

Mr. C. T. Weymann may represent America in the Schneider Cup Competition.

Three entries are announced by the Aero Club of America for the Gordon-Bennett race. Two of the pilots will be Messrs. C. T. Weymann and G. C. Bergdoll.

Argentine.

Senhor Jorge Newbery, President of the Argentine Aero Club, whose recent attempt on the height record has been mentioned, was killed near the Andes on March 1st, and his passenger was severely injured. Senhor Newbery was a member of a very well-known South American family, and had done much to encourage sport of all kinds in South America, where his loss will be greatly felt.

An official notice from the Argentine Aero Club shows that Newbery's height record was 6,220 metres, which only passes Legagneux's figure by 100 metres. According to the rules of the Federation Internationale new height records will not be accepted unless they beat the previous one by at least 150 metres, hence Legagneux officially continues to hold the altitude record.

Chile.

A pilot of the name of Méry has been killed at Santiago through turning his machine over after a descent of 300 metres.

Australia.

At Sydney, on February 22nd, 15,000 people witnessed flights by Mr. Hawker on the Sopwith "tabloid" biplane at the Randwick racecourse. With Lord Denman, the Governor-General of Australia, as passenger, Mr. Hawker went up to 3,000 ft. Miss Strickland, daughter of Sir Gerald Strickland, Governor of New South Wales, flew on the 21st with Mr. Hawker.

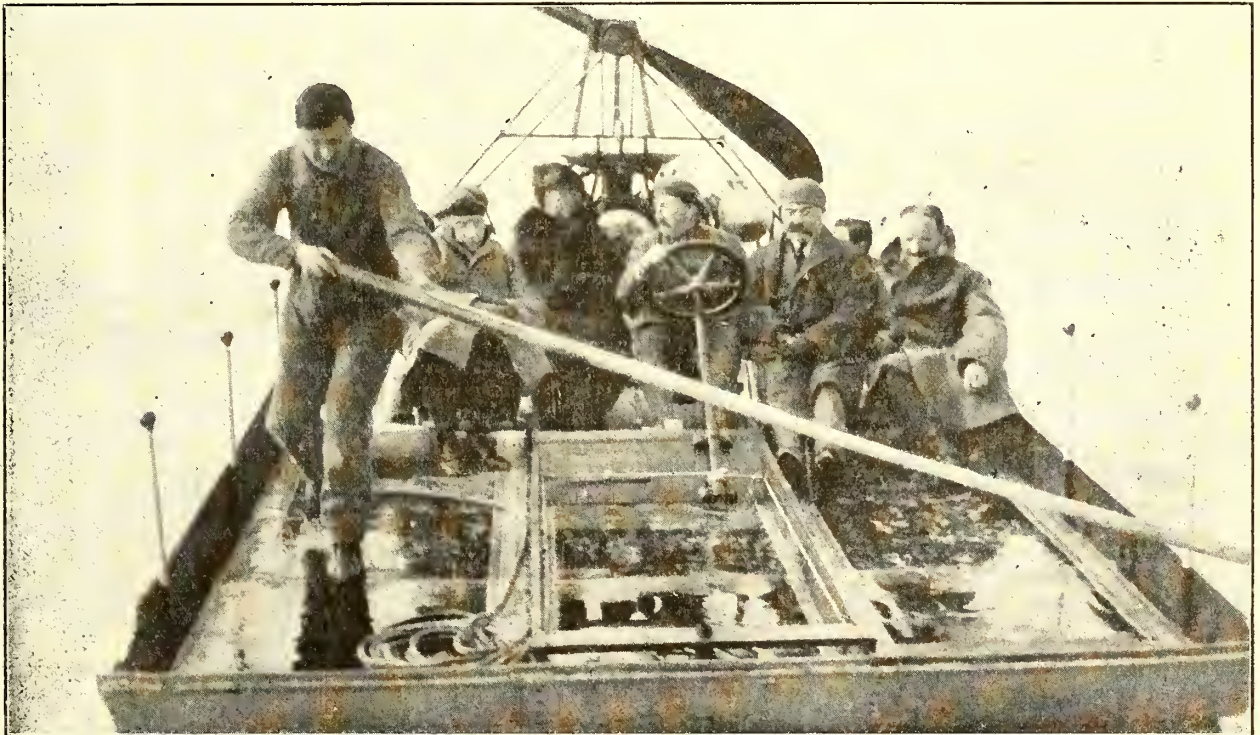
Mr. V. P. Taylor ("Captain Penfold") writes that a Maurice Farman biplane has arrived in Sydney for Messrs. Maillard, the well-known motor-car firm.

Mr. Hart, who was seriously injured in a smash last year, is now flying again in a new tractor biplane (50-h.p. Gnome) of his own construction. He does not propose to fly professionally.

Speed versus Duration.

Many writers on aeronautical subjects have laid great stress on the importance to this country of the recent long distance flights in Germany, and herein everyone will agree with them. It is necessary, however, to point out that, from our point of view in this country, it is possible to place too high a value on long distance flying. For oversea work, fairly fast machines which will fly for a long time are undoubtedly of great value, but for coast defence it seems that exceedingly fast machines of comparatively limited fuel capacity may be more valuable still.

There is little object in having a machine which can fly for six hours or more at 60 m.p.h., if on approaching the point it is desired to reach it finds it is opposed by two or three machines capable of 80 or 90 miles per hour, which are able to rise above it and use comparatively light arms from any tactical position their pilots desire to take up.



The Schneider skimming-boat (100-h.p. Salmson) on the Nile. Lord Kitchener of Khartoum is seen on the left of M. Schneider, who is at the wheel. The photograph was sent to "The Aeroplane" by special permission of Lord Kitchener.

Round the Plain in a Hurry.

One day last week the present writer, with a friend who is connected with that thing accursed of "The Times," the "trade," in search of fresh air and exercise, paid a visit to Salisbury Plain on the American system.—You know the story of the globe-trotting American young woman who, relating her travels to a friend, turned to her mother and said, "Say, Momma, you recollect Rome, don't you?" To which Momma replied rather doubtfully, "Rome? Guess that's where we saw the man washing the dawg with a tooth-brush, wasn't it?" Perhaps our recollections are a trifle clearer than that, but we hustled with trans-Atlantic vigour.

Having arrived at Amesbury the previous evening, and after spending a most entertaining time at the excellent George Hotel with one Henry Jullerot and the Bristol School—the longest school on record—about half a dozen of the pupils being well over six feet high apiece—we rose in the dim dawn next day and drove over ice-bound roads to the Bristol sheds on Lark Hill, now seeming very quiet after the bustle of the Military Trials, and totally devoid of soldiery. Here we absorbed the usual grateful and comforting cocoa (advert. rates on application), which is the best possible early morning comforter, and watched M. Jullerot doing some very pretty flying on an 80-h.p. tractor biplane, with staggered planes built onto one of the previous type monoplane fuselages.

After a short stay we progressed to the Central Flying School, where, by the kindness of the Commandant, we were not only permitted to watch the flying, but were allowed to see very many interesting things of which it is not permissible to write. One does not write of that which is shown unreservedly. However, any British tax-payer wandering along the road from Pewsey to Upavon may see for himself something of what the C.F.S. is like, and the work it is doing, so there can be no harm in saying that the number of machines out at any time on any fine day, and the quality of the flying is such as would put any ordinary aerodrome in any country in the shade. During the three hours we were there a continual stream of aeroplanes was coming and going. Farmans, B.E.s, Avros, and Shorts were all at work. The Gnome engined B.E.s struck me as being of better design than those with Renaults, and I gather from those who have flown them (not from anyone at present at the C.F.S.) that they are actually nicer to fly. Certainly I have never seen such good flying by so many pilots at once as during our visit, though, of course, trick flying is sternly and rightly suppressed.

Incidentally the free and independent voter happening along the road that morning might have seen a Henry Farman standing on its head partly on the road and partly off it, and waving its tail pathetically in the air, which would doubtless have impressed on him the need to contribute cheerfully to the purchase of aeroplanes. Fortunately the pilot was not hurt in the least, though held like a trussed chicken with his legs in the broken nacelle and the petrol tank in the small of his back. It was just one of those simple accidents which are apparently no one's fault and insist on happening at intervals. It occurs to one, however, that for school work the Henry Farman might be improved by strengthening the nacelle and running strong oval tubes from the skids to the point of the nacelle, just to help it to slide over small banks and hummocks on the Plain.

After being very hospitably treated at the C.F.S. we betook ourselves to the new station at Netheravon, where Squadron 3, R.F.C. (Major Brooke-Popham) and Squadron 4 (Major Raleigh) are quartered.

This was my first visit to the new station and I was surprised to find that everything had been got into working order so quickly. The big sheds, the garages for the transport vehicles, and the quarters for officers and men are well and substantially built, and there are many more machines than when I visited Squadron 3 at Lark Hill last summer. However, I made no note of numbers because here again we were allowed to walk about and see what we would. Evidently the machines are excellently looked after and proper arrangements are now made for heating the sheds and keeping them dry.

The amount of flying done by these squadrons is very great, and it is a pity the British Public does not know more of what is going on. Shortly after we arrived Mr. de Havilland, of

the Inspections Department, who had flown over from Farnborough with a sporting parson as passenger, left on the return journey in his usual effective style, the padre travelling heavenward with a velocity worthy of his cloth. Immediately afterwards another B.E. came down, piloted by a young friend of mine who learned to fly on a 35-h.p. Deperdussin, and apparently finds tractor biplanes much to his liking, for I learned later from his flight-commander that he had been surveying Salisbury Plain from a height of 5,000 feet or so for 3½ hours, which means just about 250 miles between breakfast and lunch. Rather a nice non-stop flight for a youngster who is only reckoned a beginner. When we left after lunch the same pilot was up again at about 2,000 feet doing spirals with a seventy-degree bank, just by way of practice.

Several pilots were away across country. A couple had gone to Newbury, a small and somewhat undistinguished town which, I gathered, is inexplicably popular with R.F.C. pilots. Doubtless the variegated country on the way offers opportunities for the study of tactical problems of interest. One young officer at Netheravon had, I was told, set himself the task of flying for 24 hours during February, at the rate of an hour a day for the month, excluding Sundays, on a Maurice Farman. Just before lunch another pilot, on a Blériot, returned from a trip to Aldershot and Brooklands, and another had gone off to Portsmouth for his morning trip. Various others were out around the Plain, and everybody seemed mighty busy about one thing or another. Certainly the R.F.C. earns its little bit of extra pay, and the difference between the fledgling of a year ago and the air corps of to-day is startling. The quality is very much there, only quantity is now lacking.

From Netheravon, whither I return thanks for its hospitality, we made back for Lark Hill, where we arrived in time to see Mr. Harry Busted testing the Baby Bristol. Everyone in the industry already knows that the Bristol people have produced a small fast tractor biplane, and anyone on Salisbury Plain can go and see it fly, but its details are being kept quiet for the time being, therefore I can only say that so far as the eye can judge it is the fastest machine in England to-day, and might still be so if the Sopwith tabloid had not gone to Australia. It is hard to judge on the Plain, because the immensity of the space dwarfs speed and everything else. Mr. Busted handles the machine beautifully. "Hands" seem to be an Australian's birthright, for I am told that Mr. Stutt, another Australian, who took his certificate the day before in excellent style, shows the same characteristic, having landed cleverly close to the mark from 500 feet with the engine stopped. The Australians are largely an equestrian race, which probably accounts for it. Anyhow, Mr. Busted lands the Baby Bristol at about 30 miles an hour or less, and pulls up quicker than does the ordinary box-kite.

Later, M. Jullerot, ever obliging, took my companion for a trip round the Plain on the 80-h.p. tractor, and Herr Voigt, a German pilot of ability and personal charm, did much box-kiting with pupils. Then, as evening was falling, the Calthorpe was headed Townward, making good time over abominable roads. So finished what might have been a hard day's work, but that the kindness of our hosts at Upavon, Netheravon, and Lark Hill, made it one of the most pleasant in my recollections of aviation.—C. G. G.

Mr. Hamel on the Parasol.

Mr. Hamel was recently in France at the Morane-Saulnier establishment, and while there had an opportunity of testing one of the new "parasol" monoplanes. Dr. Saulnier himself went up with him as passenger, and asked him to endeavour to loop the loop on it. Mr. Hamel told the writer that although he made several attempts, it was quite impossible to get upside down or even vertical, the low centre of gravity apparently pulling it back immediately it reached a very steep position. Mr. Hamel also says that the uninterrupted view over the sides is excellent, and that the machine was so beautifully balanced that it apparently lands itself. It appears to be quite as fast as the ordinary machines and certainly lifts better, probably owing to the fact that the top surface is unbroken.

"Beautifully smooth running, thereby adding to general comfort, in addition to saving engine power."—AEROPLANE.

PALMER CORD TYRES

fitted to your car will give you greater speed, greater comfort and greater safety, with reduced petrol consumption.

In the Palmer Cord Tyre Book you will find proof of the above. May we send you a copy?

Will you write for it to-day?

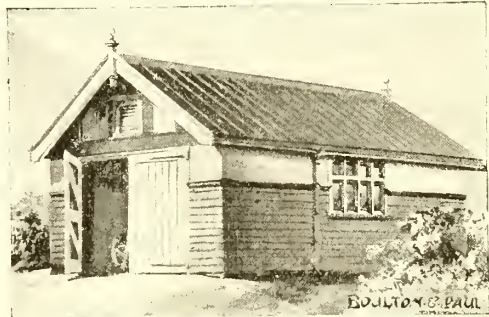
THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR HOUSES, CYCLE HOUSES.

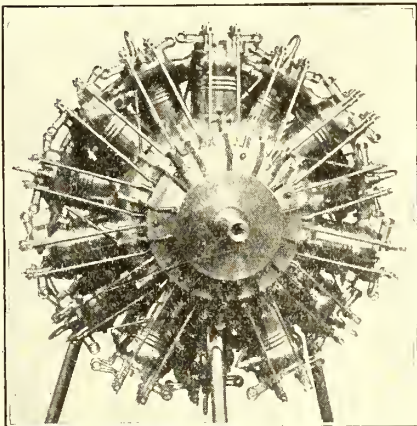
GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

SALMSON AERO-ENG INES SYSTEM CANTON - UNNE.



'Phone No.:
7 Stroud.

Tele. Address:
Humpidge,
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

London Office:—87, Victoria Street, S.W.

'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

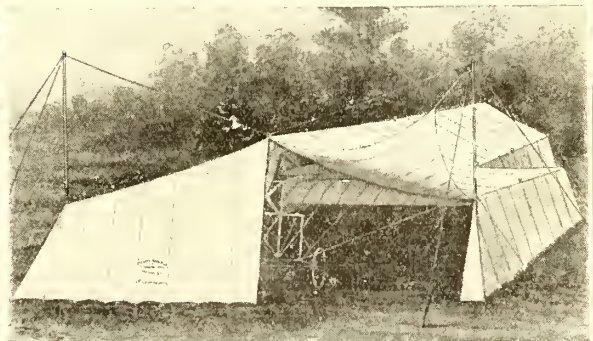
TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane is one of PIGGOTT'S PATENT AEROPLANE TENTS.

Pattern No. 3, suitable for a Bleriot Monoplane. Price in waterproof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.
Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.
(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

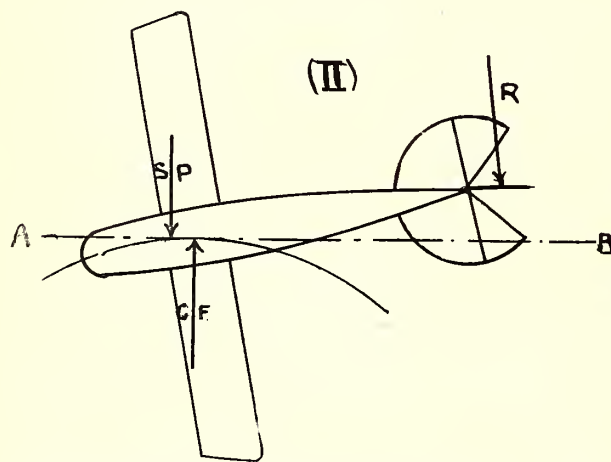
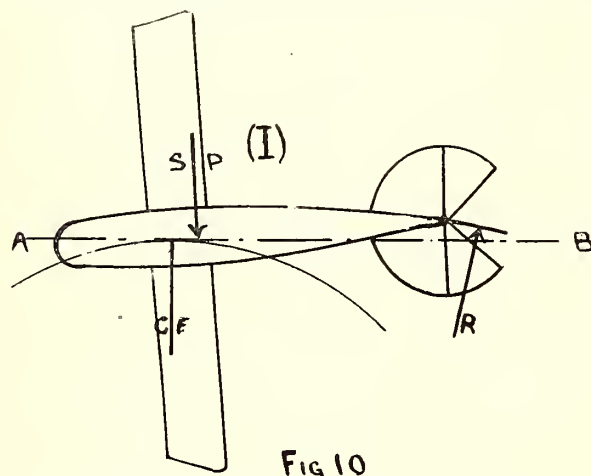
A Simple Explanation of Inherent Stability.

(Concluded.)

By W. H. SAYERS.

At the time at which the preceding statements on spiral instability were written nothing had been published on this subject (so far as is known to the writer), with the exception of certain paragraphs in "Aerodionetics" (Lanchester, "Aerial Flight," Vol. 2); but in the meantime, Mr. Bairstow has dealt with the matter in his lecture before the Aeronautical Society (January 21st, "The Stability of Aeroplanes"). Both Mr. Lanchester and Mr. Bairstow claim that the cure for directional instability lies in a forward centre of side pressure, and apparently prove their assertions by experiments with models, thus definitely contradicting the writer's conclusions. It may be as well, therefore, to go into this question a little more completely.

In Fig. 10, I is a replica of Fig. 9, except that it shows how the centre line of the machine deviates from the tangent to its



circular path, which is the momentary line of flight—i.e., that it "crabs" slightly, thereby producing the side pressure, S P. II shows the case of the machine with the forward centre of side pressure. In this case, as soon as the rudder is put slightly over, "crabbing" commences, and the forward side pressure swings the machine still further askew until the angle between A B (the momentary line of flight) and the centre line of the machine is greater than that between the centre line of the machine and of the rudder. The force on the rudder then becomes reversed and acts from the outside, so that we again have S P and R acting in opposition, though their respective rôles are reversed. The machine, as long as the rudder is held in such a position, will turn steadily at a definite radius, with the rudder checking the tendency to spin.

Now in a model aeroplane the rudder is actually a fixed surface, hence this arrangement apparently gives the required

stability. But in any actual aeroplane it is not fixed, and may be put into a position of no resistance to turning and will take that position itself if a rudder wire breaks or the pilot's foot slips from the bar, when the machine becomes completely unstable and spirals violently.

This is a point which has been completely overlooked by most of those who have dealt with this subject.

An Important Oversight.

A rudder is not a fixed surface and must not be counted on as such in a full-sized machine—although it usually is, and acts as such, in a model.

It may be remembered that Mr. Bairstow referred to marked lateral oscillations in his "stable" models. What happens in this case is that the model, on tilting sideways, slides down slightly and produces the side pressure S P, which tends to spiral it to the other side. This tendency is checked by the damping of the very large fins and by the reversed rudder action—but with a free rudder this model would spiral and nose-dive towards the (original) high side after each lateral disturbance; while the machine with the side area aft merely dives and swings towards the low side without any tendency to spiral continuously.

Mr. Bairstow's "unstable" model—produced by removing the front fin—was in the condition already referred to in which the centre of side pressure is at the commencement of a turn behind the C G, but moves forward as the turn progresses. This change over is extremely dangerous—much more so than the really unstable condition, with the permanently forward centre of side pressure, as this latter, on account of the permanent negative pressure on the rudder-bar, gives the pilot a continual warning that the machine is trying to spin, while the change over is sudden and disconcerting.

Experiments Needed.

In this connection it may be remarked that a series of experiments are desirable on the behaviour of bodies of the



Fig. 11.

form used as aeroplane fuselages or nacelles, and of flat surfaces moving in a curved path at a slight angle to that path.

Very little is known on this subject, but there is much evidence showing that differences in body form may completely alter the behaviour of a machine in this respect, and one might hazard a guess that in Fig. 11 the centre of side pressure of A would occupy a considerably more forward position than that of B when acted on by a wind as indicated by the arrows, and that a machine with a fuselage or nacelle entry such as A might be unstable, whereas an otherwise identical machine with a body entry such as B might be stable.

Stability in Various Types.

Having now, if not briefly, at least rather hastily, considered the question of inherent stability in all its more important aspects, we will consider one or two types of machine in order to notice to what extent the various desirable features may be combined, and what disadvantages from other points of view such combinations may have.

1. Machines with planes at right angles to the line of flight, with tapered and or "washed out" planes. Appreciable reduction in the disturbance due to side gusts. Combined with the longitudinal V, and a proper vertical position of the C G, both longitudinal or lateral stability may be obtained, with a fair degree of steadiness. With a correct disposition of side surfaces ensuring that the centre of side pressure is always aft of the centre of gravity, immunity from the uncontrollable spiral nose dive is secured. [That is to say, the machine will nose-dive if over-banked, but it will not "spin."—Ed.]

2. Machines as above with negative wing tips. Partial or complete neutralisation of disturbing forces due to side gusts,

reduction of tendency to overbanking on turns, leading to further reduction of risk of spiral nose dives. In combination with the longitudinal V, correct position of C G, etc., has the same good qualities as No. 1, with an enhanced degree of lateral steadiness and immunity from spiral dives.

In both the above forms the tendency is rather to increase the sensitiveness of the machine to the warp while longitudinal controls are normal.

3. Machines having negative tips and swept-back wings. These give the same lateral steadiness as the above, a greater and possibly a complete immunity from side slip, owing to the centre of side pressure on such wings being aft of the centre of normal pressure, and have in the planes themselves a longitudinal V which can be made to provide longitudinal stability. As with previous classes, lateral controls are, if anything, unusually sensitive.

If, like the Dunne, the planes are relied on for longitudinal stability, and tail planes and booms are not used, they may be more sensitive to elevator control than normal machines, owing to the better concentration of weights.

As with the other forms, the stability due to the wings themselves may be supplemented by any of the other methods of stabilising already considered. In practice machines of this type show themselves to be safe, steady and sensitive to control. It must be noted that all machines with negative tips must lose in efficiency somewhere, as the head resistance of the part of the wing beyond the non-lifting line not only is accompanied by no lift, but by an actual negative lift. Actually, owing to several causes—one being the large value of dead resistance, i.e., body, chassis, etc.—this loss in efficiency is not prohibitive, some machines with negative tips having better gliding angles than some not so provided.

4. Machines in which a dihedral angle and a low centre of gravity are relied on for lateral stability. In this case disturbance due to lateral gusts is great; also, when turning a corner, there is a tendency to overbank, owing to centrifugal force acting below the centre of side pressure, hence risk of side slip. By the adoption of vertical fins below the centre of gravity both these disadvantages are overcome. By suitable proportioning of the fin, i.e., by keeping its centre of side pressure far back, immunity from spiral diving can be obtained. This arrangement can, of course, be combined with

the longitudinal V, giving, as far as can be predicted, as good results as any combination yet tried. In this case no interference with the elevator controls occurs. With the fins some damping of the warp and rudder controls is inevitable—owing to the large fins necessary. This damping, however, could not be greater than about one-tenth of the damping due to other essential parts of the machine, which in practice would be inappreciable. No example of this type has been completed, but the behaviour of certain deep-bodied monoplanes, notably the R.E.P. and Clement-Bayard, tend to confirm the value of this method.

There are doubtless other forms of machine claiming inherent stability, but little or nothing is known as to their performance or of the ideas which have prompted their designers.

It will be noted that the question of the controllability of the various types of stable machines has been referred to, and that very little disadvantage as compared with normal machines has been admitted. It is assumed that the machine has been arranged to be stable with all controls in the normal condition, and it can be easily seen that if sufficiently powerful controls are fitted the inherent stability may be largely or completely destroyed.

For instance, if a sufficiently powerful rudder is held hard over, any machine must spiral and nose dive. But, except in the case of a jammed control, this does not matter, as the pilot can at once stop the effect, by leaving the rudder free, provided the machine has the proper disposition of side surfaces. Therefore the pilot can use his controls to any extent in an emergency, at the expense, of course, of a dive, with the certainty that after the removal of the control force the machine will return to the normal conditions. This is not true of an unstable machine—as shown in the section on spiral dives. A large amount of the prejudice on this head arises from the confusion—already pointed out—between the slow movements of the machine whose weights are widely distributed, and the lively motion of the one in which they are concentrated. The first are usually credited with a large amount of stability by those who see them in flight. They are inevitably slow in answering their controls, hence the myth that a stable machine does not answer well to controls. Actually this quality from which the steadiness arises is adverse to stability and the objection is groundless.

The Cedric Lee "Circle-plane."

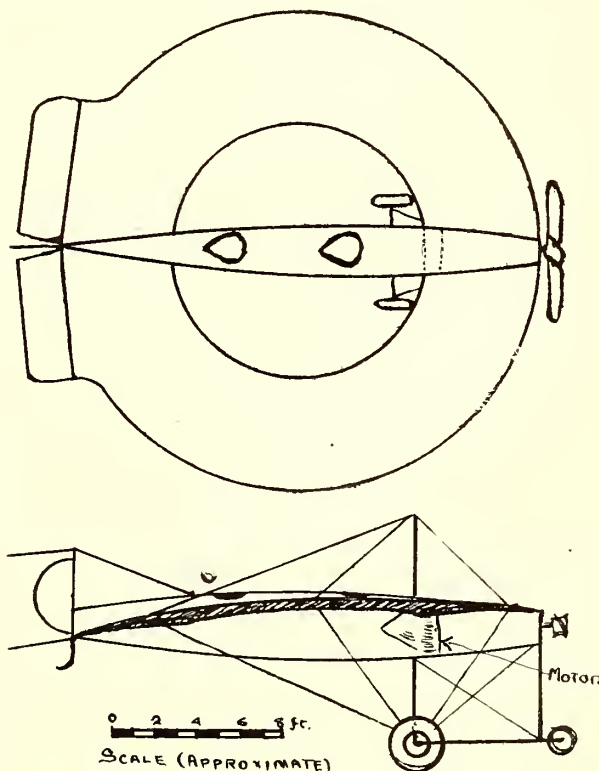
It is now possible—through the temerity of a correspondent—to publish an approximate sketch of the Cedric Lee "doughnut." As will be seen, this machine consists of an annular main plane, outside diameter about 22 ft., inside diameter about 11 ft., through which is threaded a normal fuselage. The section of this plane in the line of flight is everywhere a normal wing section, whose chord is constantly changing, there being two sections of 11 ft. at the body, rising to a maximum of about 19 ft. at 5 ft. 6 in. from the centre line, and again decreasing to nothing at 11 ft. therefrom.

To the rear edge of this plane are attached a pair of flaps, which are repeated again about 4 ft. above the plane. These act together as elevators or independently for lateral control.

The motor (80-h.p. Gnome) is fitted inside the fuselage about 5 ft. from the front end, driving the propeller by a long shaft. The passenger is well behind the forward edge of the central hole, and the pilot is towards its rear edge. The wheelbase is of the centre-skid type with wheels on telescopic spring struts, and leading wheels on the nose of the skid—introduced, one gathers, by Mr. Gordon England. The machine is very fast and apparently climbs well, but probably owing to her balance being defective has not so far shown the stability that is claimed for this type.

Austro-Daimlers in U.S.A.

The U.S.A. Austro-Daimler Syndicate, Ltd., with a capital of £2,500 (1,000 A, 1,500 B shares), has just been registered as a private company to make arrangements for the manufacture of the Austro-Daimler engines in the United States. Their registered office is Blomfield House, 85, London Wall, E.C. In this connection Mr. J. S. Burns, who has the option rights for Austro-Daimlers in the U.S.A., has just left for the States and will be glad to hear from anyone interested. Letters to him should be addressed: Waldorf Hotel, New York, U.S.A.



Mr. Hamel in Worcestershire.

On Wednesday last, Mr. Hamel gave an exhibition of looping the loop at Kidderminster before a large crowd of people, who gave him an enthusiastic reception. After "looping" six or seven times and making three or four separate flights he flew to Worcester, accompanied by a Kidderminster man as passenger.

On Thursday he flew at Malvern before a crowd which was no less for previous disappointments. Here he flew with a series of passengers, one of them returning with him to Worcester in the evening.

On Saturday he gave an exhibition on Pitchcroft, at Worcester, before an audience of six thousand people. The clouds were so low that he disappeared from sight at about three or four hundred feet. He looped the loop four times with the Countess of Dudley as passenger. One of the loops was made within 200 feet of the ground. The Witley Court house party, of which Mr. Hamel was one, were all on the ground. [Mr. Hamel, doubtless owing to his vocation, seems, according to our correspondent, to have solved the problem, hitherto the attribute of Sir Boyle Roche's bird, of being in two places at once.—Ed.] Among the guests were the Duchess of Rutland, Lady Diana Manners, the Marchioness of Anglesey, the Baroness de Brien and Baron de Meyer. This latter gentleman made a flight with Mr. Hamel, as also did Lord Ednam. Five local residents were taken up as passengers.

Mr. Hucks at Oxford.

Oxford has never had an aviation demonstration which created such excitement as the visit of Mr. B. C. Hucks last Thursday, Friday and Saturday. On the first day the roads leading to the aerodrome suggested a "trek." At 3.30 Mr. Hucks took out his two-seater, and gave a remarkable demonstration of fancy flying for about ten minutes, finishing up with a spiral descent from 3,000 feet. Two passenger flights followed; and the "looper" was then brought out. Mr. Hucks made six loops, and an upside-down flight. The next passenger was another lady, and on his last flight Mr. Hucks took up the Chief Constable, steeplechasing over the bridges.

On Friday, Mr. Hucks again steeplechased, which proved quite as popular and thrilling as the looping. Two undergraduates booked flights, but as the first was about to mount the machine, a vigilant Proctor appeared and drew attention to the order that no Undergraduate might fly, so Mr. Hucks finished the display with another flight alone.

On Saturday the crowd was immense, and there were few hedge tickets. At 3.45 Mr. Hucks demonstrated on his two-seater. On the "looper" he made seven loops, and once took his right hand off the control when upside down, waving his arm to show how easy and safe it all was.

Mr. Hucks now charges 6d. for his autograph, the money being devoted to the newly-established Aviators' Benevolent Fund. Although he could not satisfy all demands, he collected the sum of £5 for the fund.

During the afternoon a B.A., who had been refused a flight on Thursday, produced a written permission and was given a long high flight, during which he circled his particular "house." Another passenger during the afternoon was a lady who was not quite sure of her "nerve." Before taking her seat she told Mr. Hucks that she had prepared a card with her name and address clearly written, so that she could be identified when "picked up"!

To-day (Thursday) and Saturday next, March 7th, Mr. Hucks will fly at Mr. Melly's aerodrome at Nuneaton.

The British Loopers.

The latest additions to British loopers are Mr. Robert Skene, formerly a pupil of the Bristol School, and Lord Edward Grosvenor, formerly of the Brooklands Bristol School, who afterwards learned to fly a monoplane at the Grahame-White School. Both these pilots looped the loop in France last week.

The total number of British loopers up to date are, in order, Mr. Hucks, Mr. Hamel, Dr. Crawshaw, Mr. Skene and Lord Edward Grosvenor. The ladies who have looped the loop as passengers are Miss Trehawke Davies, Lady Victoria Pery, and, lastly, the Countess of Dudley, formerly Vicereine of Ireland, and more recently of the Australian Commonwealth, who looped as passenger with Mr. Hamel at Worcester.

The Sussex County Aero Club.

On Tuesday, February 24th, Capt. Herbert, R.F.C., on Henri Farman from Folkestone, landed at Shoreham for slight repairs and left again for Upavon. Mr. Jack Alcock, on the M. Farman (120-h.p. Sunbeam), spent the morning here taking up passengers, returning to Brooklands later. Mr. Pashley was out every day with his pupils or passengers. Mr. Gordon England, on the Cedric Lee machine, was out every day doing circuits, gliding and rolling tests, etc.

The New Martinsyde.

Messrs. Martin and Handasyde have now completed their new monoplane, which is on their well-known lines, so one need only indicate the differences from the machine which so distinguished itself in the Aerial Derby. The most apparent change is the substitution of nickel steel tube for hickory in the wheelbase, except in the longitudinal between the skid post and the bottom of the mast, which remains as before. In addition a pair of small wheels are fitted to the nose of the skid, and a claw brake to the tail thereof. Steel has also taken the place of wood in the kingposts on the wing, these being oval in section and joined top and bottom by horizontal tubes, the quadrilateral so formed being wire cross-braced.

The engine (120-h.p. Austrian Daimler) is slightly lower in the fuselage and the height of the cowl has been reduced $1\frac{1}{2}$ inches, while the tail of this cowl behind the pilot has been considerably lengthened—which should further reduce head resistance. Streamlining all round has been carried farther than previously, and an alteration in the wing curve, tending to lessen resistance and at the same time allowing for deeper spars, has been made. The tail plane is now built on a Duralumin tube frame—with some reduction in weight.

Amongst the minor details may be mentioned the fitting of an instrument board and the provision of a very neat folding ladder for pilot and passenger, which is carried in a little cupboard behind the pilot and can be put in place in a second. In sum these various alterations amount to an appreciable reduction of head resistance and a decrease in weight of about 100 lbs.—by the aid of which, combined with the new wings, it is expected that a speed of close on 95 m.p.h. will be obtained.

For Special Engineering Work.

Inventors of engines who wish to have special parts made, or owners of intricate engines in which small replacements by the makers cost exorbitant prices, will be interested to know that the Monk Engineering Co., Ltd., of Coventry, are willing to undertake special engine work, either in small or large quantities. This firm is noted for the extreme accuracy of its workmanship, and its knowledge of the proper material to use for special work of this kind, and the most important work can be entrusted to them with absolute confidence. The firm has already made most delicate parts for some very successful aero-engines, so this class of work is by no means new to their men.

Integral Again.

One learns that the Aviatik biplane on which Herr Ingold flew for 16 hours and 20 minutes on February 7th, thus beating the world's duration record, was fitted with an Integral propeller. It will be easily understood that an efficient propeller was absolutely necessary for so long a flight, when petrol economy is the first consideration.

The Car-type Aero Engine.

A gentleman who is interested in the Beardmore-Daimler engines, merely as a shareholder in Beardmore's and not in any official capacity, writes that we are producing to-day in this country engines which are in every way the equal of the German engines with which the recent great flights have been made. He points out that the Mercedes, which is built much on the lines of the Austro-Daimler, is only made up to 100 h.p., while the Austro-Daimler is on the market now up to 120 h.p., and that there will shortly be an engine of this type of 260 h.p. Further, it is claimed that the Austro-Daimler is superior to any other engine in point of fuel and oil consumption, and that its total weight is lower than that of any known water-cooled engine—both matters of extreme importance when long flights are in question. An Austro-Daimler has recently been subjected to a 40-hours' hench test, and during that time continuously exceeded its nominal horse-power.

ACCLES & POLLOCK, LIMITED.

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**

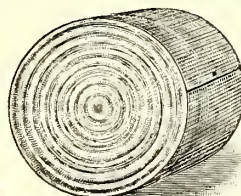
OLD BURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE



TRADE MARK 'TABLOID' BANDAGES

(Pleated Compressed)

Ordinary roller and 'Tabloid' Bandage same length and width—note relative sizes

Ideal for Aviators

Sold by all Chemists

Burr
& Co. Lond



THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

ANZANI AERO ENGINES

1914 MODELS!

25 H.P. 3-CYL. "FAN." 70-80 H.P. 10-CYL.
25 & 30 H.P. 3-CYL. "Y's." 80-90 H.P. 10-CYL.
40-45 H.P. 6-CYL. 100 H.P. 10-CYL.
50-55 H.P. 6-CYL. 125 H.P. 10-CYL.
60-65 H.P. 10-CYL. 200 H.P. 20-CYL.

All Enquiries to be sent to

THE BRITISH ANZANI-ENGINE CO. LTD.

30, Regent St., Piccadilly, S.W.

'Phone: 280 Gerrard.

Wire: "Anzani, Piccy," London.

Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality

ON ADMIRALTY AND WAR OFFICE LISTS



R. W. COAN

219,
GOSWELL
ROAD,

LONDON, E.C.

Telegrams—

Krankases,
Isling,
London.

Telephones—

3846 City
4879 Central.

SPARS BOOMS

and all
AEROPLANE
PARTS to
makers' own designs

Send us your Requirements and let us quote for you.

R. CATTLE,

Machine Woodworking
to the Trade,

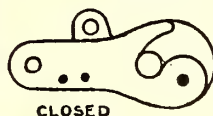
27 Wybert St.
Stanhope St., N.W.

STRUTS SKIDS

RELEASE GEARS for AEROPLANES

AERO EXHIBITION, Olympia. Stand No. 17.

REG. PATENT N° 17,090-11.



CLOSED



OPEN

SPECIAL STEEL STRAINERS, EYEBOLTS
BOLTS and NUTS, ETC. ALSO ENGINE HOUS-
INGS, and STEEL TUBE WORK.

Prices and Catalogue Free.

RUBERY, OWEN & CO. DARLSTON,
SOUTH STAFFS
Manufacturers of Aeroplane Accessories.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Flying at Hendon.

The Hendon Meeting on Saturday was a great success, for the weather was ideal both from the spectators' and the pilots' point of view, and all the enclosures were well filled. Early in the afternoon Lieut. Spenser Grey, R.N., went up on the new Sopwith scouting biplane (100-h.p. Gnome), belonging to the Navy, accompanied by a passenger, and after reaching 10,600 feet, lost himself in the London fog, and landed at Barking, returning later. Exhibition and passenger-carrying flights were made by the Grahame-White pilots, and by Mr. J. L. Hall on his Avro. M. Pierre Verrier evolved on a standard Maurice Farman, and after stopping his propeller at a considerable height, floated about till he reached the ground. Later he took one of the latest M. Farman's into the air, and showed it to be considerably faster than the old type machine, but one misses in it the indescribable elegance and precision of control which so marks the slower machine.

Since the larger lower plane has been added to the Grahame-White tractor biplane she no longer resembles a tea-table, and is now commonly known as "Lizzie." The machine carrying Mr. Carr and Mr. Chapman has climbed to 1,000 feet in 3½ minutes, and flew a lap in 1 minute 52 secs, which is equal to 59 miles an hour, or about 62 on the straight. This approximates closely to the first 50-h.p. Avro delivered to the Army last summer, whose speed range with full load was 38 and 64 m.p.h., and whose climbing speed with full load was 1,200 feet in three minutes. "Lizzie" now flies quite prettily.

The speed handicap was quite good to watch, all the competitors keeping well together. In the first heat were Messrs. Birchenough and Cripps on box-kites, Mr. J. L. Hall on his Avro, Mr. Reginald Carr on "Lizzie," and M. Marty on the Morane. The result was Mr. Cripps 1st and M. Marty 2nd. The second heat was contested by Mr. Strange on a box-kite, Mr. Claude Grahame-White on the Maurice Farman, M. Verrier on the shorthorn Maurice Farman and M. Louis Noel on the tandem Blériot. Result: Mr. Grahame-White 1st, M. Verrier 2nd. In the final Mr. Cripps won with a very short lead from Mr. Grahame-White; M. Noel was third, while M. Verrier retired.

Mr. Goodden came out on his Caudron as soon as the race was over, and after getting half a mile above the earth, assumed violent and frequent perpendicular attitudes, both lateral and longitudinal. The Sopwith also hove in sight from the south-east, and after a short stop Lieut. Spenser Grey took Mr. Churchill for a long flight.

Sunday proved an equally delightful day, and much flying was done. Among the distinguished visitors was H.R.H. the Prince Philip of Württemberg, who made a trip with Mr. Grahame-White, Lord Stanton, Lord Londesborough, Lady Limerick and Lady Victoria Pery.

On Thursday last week, M. Verrier, flying to Farnborough on a Maurice Farman, reached a height of 9,600 feet, descending in 16 minutes.

On Thursday, 12th, being the day of M. Marcel Desoutter's Benefit at Hendon, Messrs. Hamel and Hucks have promised

to give an exhibition of "fantastic" flying. The performance should be well worth seeing, for both are masters of their own type of machine. Their joint performance will be repeated on the following Saturday, the 14th.

Flying at Brooklands.

On Monday of last week, Mr. Barnwell took several mechanics for 17 rides on a box-kite. Messrs. Alcock, Jones, and Raynham were also out. On Tuesday Mr. Jones was out several times. Mr. Barnwell tested the gun machine with new wings; wooden spars and ailerons are fitted. It flew very well. Messrs. Barnwell, Waterfall and Raynham were out on the Martinsyde. The D.F.W. also flew. Mr. Alcock went to Shoreham and back. A Russian commission came down to see the Vickers gun machine, which evolved well and fired blank cartridges at intervals. They seemed greatly impressed by the lifting speed.

On Wednesday, Mr. Raynham flew a Vickers box-kite. The Vickers and Bristol schools took a ticket each. Mr. Jones was out.

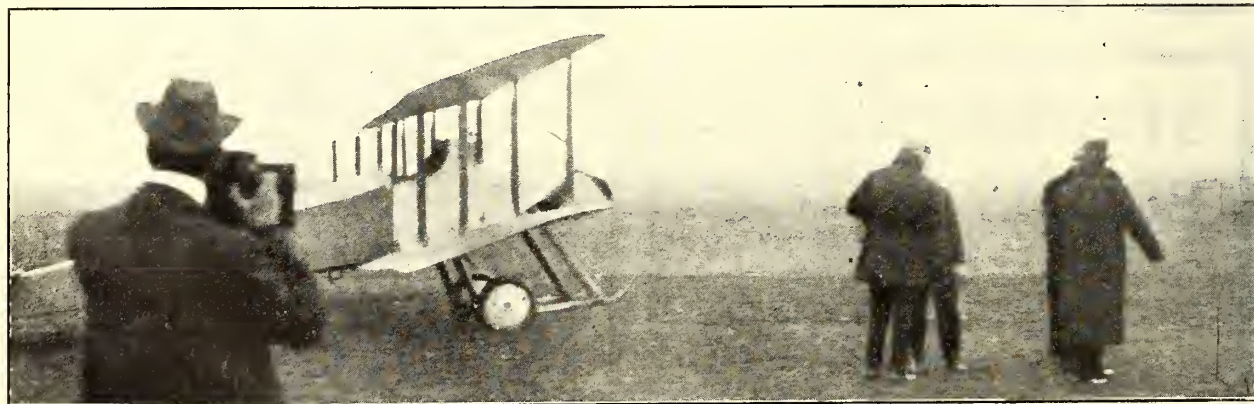
On Thursday, Messrs. Jones, Alcock and Raynham were out, as was Mr. Barnwell, on the Martinsyde. Mr. Gaskell Blackburn had a satisfactory engine test and will probably be out soon. On Friday the Farman-Sunbeam and D.F.W. flew, and Mr. Raynham tried the Vickers Blériot. A "B.E.," piloted by an old Vickers pupil, came over from Farnborough. Six machines were in the air at one time. The A.B.C. on the Avro was tested, but did not fly. On Saturday Mr. Barnwell was out on the Vickers gun machine.

On Sunday the Avro, the Farman-Sunbeam, the Flanders, a Bristol, and a Vickers box-kite were all flying well before a goodly crowd, which taxed the good Mrs. Billing's catering to the utmost, one irascible little man demanding all kinds of apologies because he who came last could not be served first.

One cannot design catering arrangements with a 20 to 1 factor of safety and make a living.

The new Armstrong-Whitworth A.B.C. engine for the Avro seems a very fine piece of work, the welded steel jackets being particularly neat. One hears that a similar engine recently ran a 17-hours' test and was only stopped then because the men in charge could not stand the noise any longer. A two-cylinder section of the same engine, rigged up as an experiment to test valve-gear, etc., has done a 24-hour non-stop run without giving trouble, so its prospects are very promising.

It is rumoured that a large, influential and wealthy syndicate is to be formed to finance a trans-Atlantic attempt on the part of the de Bolotov triplane. One assumes that in the event of the said i. i. and w. syndicate being formed, a completely new machine will be built, for the one at present in existence was started some four years ago, and although it now includes much modern material, such as varnish for the planes, and so forth, aerodynamically it adheres to its original design. The engine is a magnificent example of the Panhard workmanship, designed for dirigible work at the same date, but it is obviously too heavy, and is not in accord with modern practice.



The Penalty of Greatness.—Mr. Winston Churchill, on the extreme right, after inspecting the Admiralty's new Sopwith biplane at Hendon, shows his opinion of Press Photographers.

The Week's Work.

Weather Reports for Week Ending, March 1st.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Wind	Fair	Fog	Good	Fog	Impos.	Fine
Calshot ...	Rain	Wet	Wet	Fair	Fair	Fine	Fine
Eastchurch ..	Fine	Wet	Wet	Fine	Fine	Fine	---
Hendon ...	Fair	Windy	Fine	---	Fair	---	---
Montrose ...	Stormy	Bright	Bright	Hazy	Hazy	Dull	---
Salisbury Plain	Wind	Fine	Fair	Good	---	---	---
Shoreham ...	Windy	Fair	Fair	Fair	Calm	Calm	Windy
Waterloo							
(L'pool)	Windy	Fair	Calm	Fair	Fair	Breezy	Breezy
Windermere ...	Fair	Fair	Fair	Fair	Fair	Fair	Fair

School Reports.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Birchenough, Strange, Cripps and Howarth. Pupils with instructor: Prince Sapieha, Messrs. Barrs, Parker, Cowley, Edridge-Green, Moore, Grahame, Piercy, Kershaw, Tapps, Lieut. Lindop. Strts or rolls alone: Messrs. Edridge-Green, Bjorkland, Stewart, Barrs, Moore, Francis, Grahame, and Lieut. Lindop. 8's or circles alone: Lieut. Lindop, Messrs. Bjorkland, Stewart, Grahame, Edridge-Green, Barrs, Lillywhite. Machines in use: Grahame-White school biplanes, Blériot mono.

AT EWEN SCHOOL.—Instructors during week: Messrs. F. W. Goodden and W. T. Warren. Pupils, strts or rolls alone: Messrs. Bankes-Price, Carruthers, Wiggett, Garvin and Curtis. Half circles alone: Mr. Murray. Machines in use: 35-h.p. Caudron biplanes.

AT HALL SCHOOL.—Pilot during week: Mr. J. L. Hall. Pupils, strts and half circles alone: Messrs. Arcier, Brookes, Gering, Edcombe-Palmer, and Virgilio (20 each). Machines in use: Avro and Caudron biplanes; Blériot mono. One Caudron and one Blériot hors de combat from rough landings. Several passenger flights given by Mr. J. L. Hall on Avro during week.

Brooklands.—AT VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight, and Elsdon. Pupils with instructor on machine: Capt Ross-Hume (8), Mr. Hurst (5), Mr. Wilberforce (14), Mr. Spencer-Warwick (1), Lt Mansergh (1), Lt Jackson (4), Mr. Farie (5), Mr. Dawson (1) (biplane). Strts and rolls alone: Mr. Spencer-Warwick (1) (biplane). 8's or circles alone: Mr. Hurst (2), Lt Mansergh (1), Capt Ross-Hume (5), Mr. Spencer-Warwick (5), Lt Jackson (8) (biplane), Mr. Webb (2), Mr. Morgan (1), Mr. Chataway (1), Mr. Hinshelwood (2) (monoplane). Certificates taken: Capt Ross-Hume, Lt Jackson, Mr. Spencer-Warwick (biplane). Machines in use: Three biplanes; one mono.

AT BRISTOL SCHOOL: Instructor during week: Mr. Halford. Pupils with instructor: Lt Fraser (2); Sergt Deane (1). Strts or rolls alone: Lt Fraser (4). 8's or circles alone: Lt Fraser (6). Certificate taken: Lt Fraser, Feb. 25. Machines in use: Two school biplanes.

AT SUNBEAM CO.—Pilot Mr. Alcock on Maurice Farman (100-h.p. Sunbeam) 1 hr with passenger at 4,300 ft. Monday across country with passenger twice at 4,000, also to Shoreham on Tuesday with Mr. Wheeler, arriving at 7,000 ft. On Wednesday with a passenger 1,500 ft. On Thursday five passenger flights, and several more on Friday and Saturday, all at 2,000-3,000 ft. Sunday, the good work in progress all afternoon—several lady passengers, amongst them the ballot winner.

Salisbury Plain (BRISTOL SCHOOL).—Instructors during week: Messrs. Voigt, Jullerot, Sippe, Busted. Pupils with instructor: Capt Fell (14), Capt Walcot (12), Mr. Stutt (2), Lt Barratt (18), Lt Bolitho (15), Mr. Chambers (4), Mr. Hay (5), Lt Myburgh (5), Lt Harman (3). Strts or rolls alone: Capt Fell (3), Lt Harman (1). 8's or circles alone: Mr. Stutt (3), Capt Fell (1). Certificate taken: Mr. Stutt, Feb. 25. Machines in use: Three school biplanes; one tractor. Splendid weather on Tuesday, nearly 50 flights made. Mr. Busted testing new Baby speed machine.

Eastchurch.—The Hon. Maurice Egerton out on Tuesday, Wednesday, and Friday, 2 flights per day, and on Sunday 3 flights (Short 50-h.p. Gnome). Mr. Gordon Bell on the Short sociable (100-h.p. Gnome) took Mr. Fairey as passenger on Wednesday and Friday, and Professor Huntington was flying on Friday and Sunday, on latter occasion reaching 2,000 ft in a nasty wind.

Eastbourne.—AT E.A.C.: Instructors during week: Messrs. Fowler, Gassler. Pupils with instructor: Mrs. Salmon in pilot's seat (12) (60 mins), Mr. Gwynne in pilot's seat (6) (40 mins). Mr. Gwynne 3 circles alone. Machines in use: Two propeller biplanes; one 50 Gnome Blériot. Mr. Bryan Hunt has taken over Mr. Fowler's old 50 Blériot and has made several good flights during week, including a trip to Shoreham and back. Messrs. Fowler and Gassler have also been flying a 50 Blériot. Three passenger flights given during week.

Waterloo (LIVERPOOL).—Instructor during week: Mr. H. G. Melly. New pupil, J. Crean, getting accustomed to engine controls. Machine in use: Anzani-Blériot mono.

Shoreham.—AT PASHLEY SCHOOL: Instructor during week: Mr. Cecil L. Pashley. Pupil with instructor: Mr. A. D. Gray, making good progress. Machine in use: Farman type biplane.

Windermere.—AT LAKES FLYING CO.: Instructor during week: Mr. Stanley Adams. Pupil Mr. Lancaster, with Mr. Adams as passenger on "Water Hen."

Filton (BRISTOL CO.).—Mr. Sippe out on new high-speed tractor biplane. On Thursday to Chipping Sodbury and back, escorting Lt Hazell, R.F.C., returning at 4,500 ft and landing in a fine spiral into the restricted ground.

Some Useful Tools.

Messrs. Richard Melhuish, Ltd., of Fetter Lane, E.C., wish to draw attention to two novelties which should be of interest to those engaged in the construction of aeroplanes—a new type of wire-cutter and an excellent form of bench shear. The wire-cutters are of the end-cutter type, the body being made of a pair of very stout steel drop-forgings fitted with renewable cutters. Unlike many cutters of this type, the dovetail slots in which the cutters are fixed are of generous proportions and are backed by plenty of metal, ensuring that the cutters shall not work loose after long use—a very common complaint with this type of snipper. One learns that these cutters are very popular with the R.F.C.

The strong point of the shears referred to is that the frame is so cranked that, when a long cut is taken, the cut-off piece can pass straight on—without being bent, as is usual.

Messrs. Melhuish, Ltd., of course, handle every conceivable type of tool, also wire-strainers, wire, etc., and those to whom the subject is of interest cannot do better than write for their catalogues Nos. 20 and 21 (metal and wood-working tools, respectively).

To Motorist Also.

Owing to running short of oil for the editorial car engine at Brooklands recently, the writer commandeered some Castrol consigned to Mr. Hamel, and filled up with it. The engine, a 12-14-h.p. Calthorpe, which has done a great deal of hard work in the past twelve months, seemed to take a new outlook on life from that moment, for it not only ran more smoothly but, somewhat naturally, gave more power. At a later date, no Castrol being available on that occasion, the engine was dosed with another widely advertised motor oil, and the immediate falling away in power was most marked. In future the writer is a firm believer in "Castrol for Calthorpes."

Telegrams: "Bucheron, London."

Telephone: 3811 Hop.

TIMBER

for any type of

AIR or WATER CRAFT

Send your enquiries to

JOSEPH OWEN & SONS, LTD.,

199a, Borough High Street, London, S.E.

Airmen Use Zam-Buk

Zam-Buk is the Airman's best insurance against the festering of a simple cut, knock or scrape, and is of inestimable value as a preventive of blood-poisoning, so often set up in the hands of the mechanic from the grease and dust he works amongst. Besides being kept handy in the hangars, leading Airmen always carry Zam-Buk and lint on their cross-country flights

MR. F. WARREN MERRIAM says: "When my engine failed over bad ground the monoplane turned over on top of me, cutting my head. I applied Zam-Buk immediately, and it soon healed the cuts. I always keep some Zam-Buk by me."

MR. SYDNEY PICKLES, the well-known pilot and teacher, writes: "I find Zam-Buk extremely useful to have by me. I have found this balm to be most efficient in healing scratches and abrasions caused when handling aeroplanes."

No User of Tools can Afford to be Without our Notable Catalogue of Labour Saving Tools
"Recollection of Quality remains long after the price is forgotten."
UNIVERSAL WOODWORKERS' CRAMP. New Design. Instantaneous Action

TOOLS
New Wood Workers. No. 21
6d. postage. 383 pages.



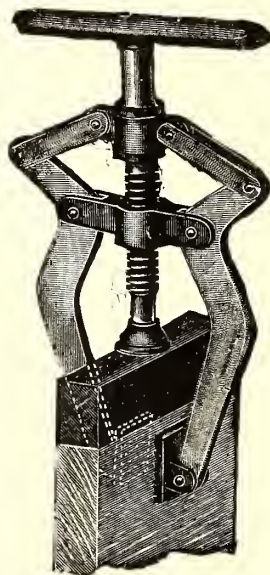
Write for New Engineers' and Metal Workers' (all trades) Catalogue No. 20 7/6

Contains 560 Pages, ENTIRELY FREE on receipt of 1/-, to defray cost of post and packing.

Largest Stock of Tools and General Fittings in Gt. Britain
Write us your requirements.

Established 1828.

R. MELHUISE, Ltd., 50-51, 84, Fetter Lane, E.C.
Tools, Machinery & Hardware Merchants. 143, Holborn Bars.



No. 987w. Has a single screw which works both arms... each 3/6

No. 988w. Has a double screw; the longer one may be used independently while the two arms grip the work. The wing nut on top locks the arms... each 4/6

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.
Special PREPAID Rate—18 words 1/6; Situation Wanted ONLY—18 words 1/- id. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions. Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

W. H. EWEN SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES. Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

HALL SCHOOL OF FLYING. Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.
Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION CO., London Aerodrome, N.W.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work. £50. Passenger flights from £2 2s.

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.
Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from **THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.**

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIÈRE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD., 307, Euston Road, London, N.W.** Telephone: 912 North. Telegrams: "AviPROP," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London.** Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE, 166 Piccadilly, W.**

ENGINES

ENGINE WANTED.—50 h.p. Gnome; must be in good condition and reasonable in price.—**PASHLEY BROS., Shoreham Aerodrome, Sussex.**

CURTISS 25 h.p. four-cylinder aviation engine, practically new; Bosch dual ignition, Schenber carburetter, silencer, flywheel, radiator, oil tank; price £40, cost £300.—2a, Kelvin Road, Highbury, N.

EMPLOYMENT.

BALLOONS.—Wanted, experienced hands for balloon and airship envelope manufacture.—Apply, **VICKERS, LTD., Naval Construction Works, Barrow-in-Furness.**

WANTED immediately, two good all-round mechanics.—Apply, stating qualifications and wages required, to **PASHLEY BROS., Shoreham Aerodrome, Sussex.**

COPPERSMITH seeks position as foreman; can also do fitting and wire-splicing, etc.—**BIRCH, 107, Westinorland Road, S.E.**

SKILLED artisan requires berth where ability would be appreciated; long practical and theoretical experience as foreman and works manager of aeroplane factory; good draughtsman; well recommended.—Box 537, c/o **THE AEROPLANE, 166, Piccadilly, W.**

YOUTH (21) desires employment with aeroplane company at Hendon or Brooklands; very keen, willing to learn.—G., 37, High Street, Kingston-on-Thames.

WANTED, one assistant and three junior draughtsmen; starting salaries, 30s. and 22s. 6d. respectively.—Apply **SOPWITH AVIATION CO., LTD., Kingston-on-Thames.**

WOODWORKER and coverer, experienced; read drawings; used to Government work, construction, erecting and wiring; distance no object; good references.—Box 538, c/o **THE AEROPLANE, 166, Piccadilly, W.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road.** 'Phone 4770 Wall.

OLYMPIA SHOW

CHALLIS PRIVATE HOTEL

24-26 SINCLAIR ROAD, KENSINGTON.

ONE MINUTE FROM OLYMPIA

E. PATERSON, Proprietress.

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MONOPLANE, size 31 inches by 24 inches. Price 5s. Flights of nearly a ¼-mile have been obtained with this model. Set of parts, with drawings for building above model, 2s. 6d.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

LONG distance monoplane, 38 in. by 24 in., 7s. 6d.; guaranteed. Wire planes made to sketches, 1s. 6d. sq. ft. A. Frames varnished and strained, 1 ft. 6 in., 9d.; 2 ft., 1s.; 2 ft. 6 in., 1s. 3d.; 3 ft., 1s. 6d. Bent propellers, 6 in., 6d.; 7 in., 8d.; 9 in., 9d.; 10 in., 1s. pair. Carved, 1½d., 1 in. Silk, 36 in. by 12 in., 1s. 3d. Bearings, 2d. pair. Postage extra.—**WOOLWICH AERO CO., Eton Road, Woolwich.**

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

'Phone: Kingston 869.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our **New Illustrated Models Catalogue** now ready, Contains **Sopwith Tractor, Deperdussin, Bleriot, Canard, Clarke Mono,** etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic rod. per doz. yds

S. J. KEMP & Co.,

CROWN WORKS, Kingston-on-Thames.

(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)

Every Requisite for Model Aeroplanes. Send 1d. for List.

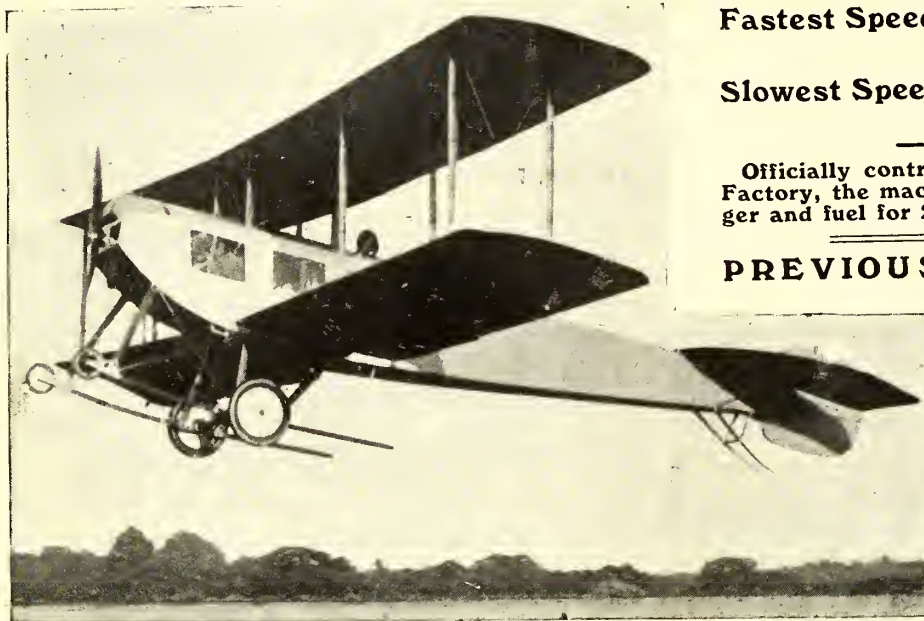
Models of Every Description built promptly.

Phone 321 Kingston.

Telegrams "Garage, Kingston-on-Thames."

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnome) beat all WORLD'S RECORDS FOR EFFICIENCY.



Fastest Speed 92 miles
(154 kms.) per hour.

Slowest Speed 36.9 miles
(61 kms.) per hour.

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

PREVIOUS RECORDS on the preceding type of **SOPWITH BIPLANE** (80 h.p. Gnome).

British Height Record
(Pilot alone) 11,450 ft.

British Height Record
(Pilot and 1 Passenger) 12,900 ft.

British Height Record
(Pilot and 2 Passengers) 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works: KINGSTON-ON-THAMES.

Telegrams:
"SOPWITH, KINGSTON."

COMBINED DEMONSTRATIONS OF

"LOOPING THE LOOP" AT HENDON.

By Mr. B. C. HUCKS and Mr. GUSTAV HAMEL

On THURSDAY, MARCH 12th and SATURDAY, MARCH 14th,
from 3.30 p.m. to 5.30 p.m.

(Weather permitting)

ADMISSION 6d. 1s., 2s. 6d. and 5s.
(Children Half Price)

MOTORS 2s. 6d. and 5s.
(Includes Chauffeur)

WINTER SEASON—RACES EVERY SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

PASSENGER FLIGHTS DAILY FROM £2 2 0.

The London Aerodrome, Hendon

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."
LONDON: 166, Piccadilly, W. Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."

COMING EVENTS.

Sat., March 7th. MARCH MEETING.

Thur., Mar. 19th. DESOUTTER BENEFIT MEETING.

Sat., March 21st. AERO SHOW SPEED CONTEST. ("Shell Trophy.")

Sat., March 28th. SPRING MEETING.

"WHAT TO SEE AT OLYMPIA."

THE AEROPLANE



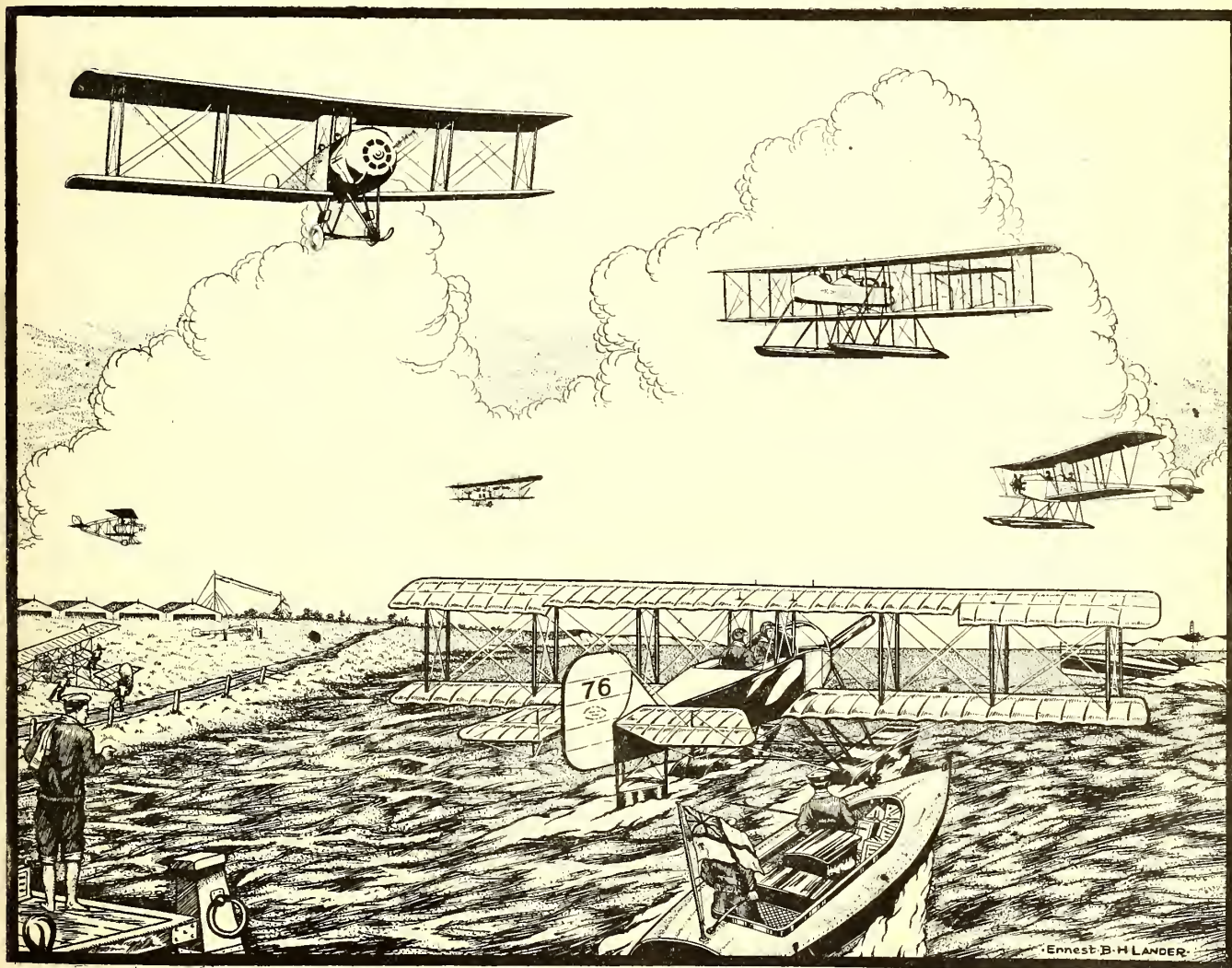
Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, MARCH 12, 1914.

No. 11

AN AIR STATION IN BEING.



A suggestion for an Aero-Show Poster that might have been.

THE
NIEUPORT (ENGLAND) LTD.

**45, Gt. Marlborough Street,
London, W.**

ALSO AT

ISSY-LES-MOULINEAUX, near PARIS

VILLACOUBLAY (Seine et Oise)

SAINT RAPHAEL (Var)

All Types of Aircraft Manufactured :
Armoured and Fighting Aeroplanes
Fast Monoplane Scouts
Two-Seater Military Monoplanes
Hydro-Aeroplanes
Skimmers for use in Shallow Water

**Three machines will be exhibited at
THE OLYMPIA AERO SHOW**

STAND 65

Address all enquiries to the Managing Director :

**MR. ALBERT PICARD,
45, Gt. Marlborough St., W.**

Telegrams : "Nieuplane, London."

Telephone : Regent 5210 (2 lines).

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

WHAT TO SEE AT OLYMPIA.

It is to be hoped that everyone who is at all interested in flying will make a point of going to the Aero Show at Olympia, which opens on Monday next, and that he or she will endeavour to persuade as many of his or her friends as possible to go there also, for at the Show the public has an opportunity of examining aeroplanes at close quarters in a way which is impossible at any aerodrome.

Also, one hopes that the attendants on the stands will realise that they have here the best opportunity of the year to interest people in flying in general, and will give the soft answer which turneth away wrath even to the most foolish questions. The stout old lady in a mantle and jet bugles who wants to know which end of an aeroplane goes first, may be the mother of a youthful millionaire, and if she can be interested in the machine she may assent to the young hopeful becoming a flier.

Not long ago a charming lady asked a well-known pilot whether it wasn't very dangerous if the engine stopped, and how he managed to get down? He replied affably: "Yes, madame! That is the great danger. There are three men in France at present whose engines have stopped in the air, and they can't get down, so the poor chaps are slowly starving to death." A very humorous reply, but on a stand at the Show, which this year for the first time looks like being a business proposition, it would be wiser to explain that when the engine stops an aeroplane is safer than a parachute, because it descends more slowly and is under full control all the time, so that the pilot can pick his landing place, whereas the parachute cannot. The inquiring person, male or female, may be one of those who decide whether someone else may fly or not.

Also, the elderly foreigner, speaking imperfect English hard to understand, though he may appear a fit subject for the merry jester from the aerodrome, may be the emissary of a foreign Power, and a good impression made on him may mean the sale of some thousands of pounds' worth of aeroplanes.

These remarks are, of course, for the benefit of the high-spirited youths from works or flying grounds acting as assistants on the stands, who are, at their worst, an improvement on the too immaculate young persons with spotless spats and Cockney accents who pervade the stands at the Motor Show. Naturally, the heads of firms themselves realise the frequency with which one may entertain angels unawares, and one would merely commend to their notice the example of a certain exhibitor last year, who, when the crowd of "workers" arrived every evening after shops and offices were shut, invited all and sundry to clamber about the machines and sit in the pilots' seats, on the principle that the more the people knew about aeroplanes the better for the Air Services, and that even if they did put their feet through the planes, or soil their whiteness with dirty paws, the machines would have to be done up after the Show anyhow. It is

well to remember that, although we are rapidly approaching the commercial stage of the trade, there is still much missionary work to be done.

As to the Show itself, for the first time in history we shall be able to show foreign visitors that our aeroplanes are as good as anything abroad, and that most of ours are better than any except the pick of the French machines. Happily, also, we shall have the very best French machines alongside our own, so that exact comparisons can be made. One regrets that there will be no German aeroplanes to be seen.

Fortunately for themselves, but unfortunately for the Show, one or two British firms notable for the excellence of their workmanship have been unable to exhibit, as they are too busy to spare either time, men, machines, or money for Show purposes, and other firms are only showing one or two machines, where they might have shown various other types. However, there will be plenty to show our progress during the year, notably in seaplanes, and the fact that three firms who have come into the industry since the last Show are exhibiting aeroplanes of this class, indicates the direction in which business is chiefly expected.

On the whole, everything points to its being a very good show indeed, and visitors should not be deterred by the poster which has lately appeared, doubtless with the intent of attracting people to the Show, though if the Show were like to be anything nearly as crude as the poster there would be little reason to go to it.

One wonders time after time who is guilty of perpetrating the outrages on the public eye with which the Society of Motor Manufacturers and Traders bespatters the hoardings of London whenever it is holding a show. It is true that the present poster is merely crude in drawing and colouring, giving one the impression that some kindergarten pupil has endeavoured to copy a lurid chromo with the aid of some tracing paper and a penny paint-box. It is not wholly ludicrous, as was the picture two years ago of the damsel controlling an impossible aeroplane by means of a beer-engine; nor is it as amorphous as was last year's effort apparently depicting several imaginary machines about to alight on Olympia on a foggy night; neither is it as actively offensive as was the last Motor Show poster of the absconding solicitor's clerk and the girl from the cigarette shop; it is merely depressing. One might expect it from some such mid-Victorian firm as "The United Metropolitan Improved Hot Muffin and Crumpet Baking and Punctual Delivery Company," immortalised by the late Charles Dickens, but one cannot help despairing of the intelligence of one's fellow men when a body such as the S. M. M. and T., which presumably has on its multitudinous committees someone who has at least once in his lifetime seen an aeroplane and has also seen a decent piece of painting, permits such stuff to be published in the combined names of aviation and pictorial art; and

why anybody should be able in these days to earn good money by drawing, painting, and producing these things, passeth all understanding. However, one hopes that in spite of the poster, every reader of this paper will visit the show as often as his finances permit, and will go out into the highways and by-ways and compel his or her friends to come in.

Hereafter follows an account of what to see at

Olympia, arranged alphabetically to facilitate the finding of any particular stand. Where the firms concerned have furnished sufficient particulars attention is drawn to the notable points of the exhibits, or to past performances which make them noteworthy. In the hopes that it may assist visitors to the Show to appreciate the excellent display set out for their edification I present it to my readers.—C. G. G.

Machines at Olympia.

THE AIRCRAFT MANUFACTURING CO., LTD.

The Aircraft Manufacturing Co. will exhibit an example of the latest (Shorthorn) type Maurice Farman. This machine differs from the well-known earlier type in the absence of a front elevator, the placing of the nacelle and motor midway between the planes and in having a monoplane tail of great span and high aspect ratio. The motor is the standard 70-h.p. Renault.

They will also show a Henri Farman (80 Gnome) seaplane. Special attention should be given to the sprung chassis which has given such good results. This machine is fitted with a Rouzet wireless set. Both machines will be entirely British built (motors excluded). The popularity of the Farman aeroplanes in the air services of all nations may be understood when one examines the workmanship and finish of these machines.

N. PEMBERTON BILLING.

Mr. Pemberton Billing will show P.B.1, a light sporting single-seater tractor-drawn flying boat, or as the maker aptly terms it, "Supermarine," fitted with a 50-h.p. Gnome, and also a scale model of P.B.3, a much larger and more powerful machine of the same type to be fitted with two 120-h.p. Austro-Daimlers. In both these machines a seaworthy hull has served as the basis of the design, and steps have been taken to make these fly, and although many novel features are embodied, nothing has been done without good reason. These "supermarines" are fitted with a very neat grapnel, and with Mr. Billing's patent "Supermeter," an ingenious instrument for indicating when one is approaching land or water, as the case may be. The "Supermeter" gives visible and audible warnings varying with the actual heights, from fifteen

feet downwards, and must be of great use on those occasions when the water is invisible or at night.

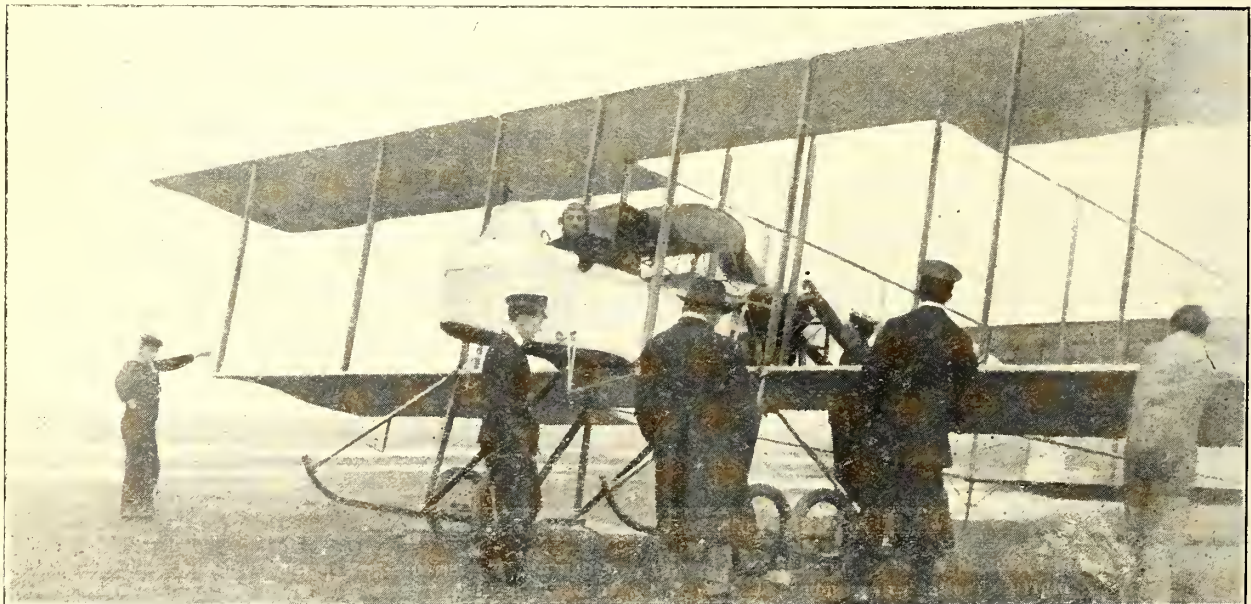
THE BLACKBURN AEROPLANE CO.

The Blackburn two-seater monoplane and Blackburn propellers are shown. The Blackburn monoplane is generally similar to that which has been sold to Dr. Christie, and is fitted with an 80 Gnome motor. It has a speed range of 40 to 70 m.p.h., and good climbing ability. Fuel capacity is for four hours' flying. This machine is a good example of up-to-date monoplane design.

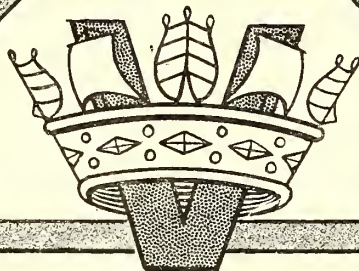
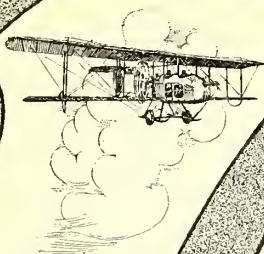
BLERIOT AERONAUTICS.

M. Blériot, per M. Chereau, will show a Blériot tandem two-seater (type XI bis.) monoplane, a Blériot "Total visibility" type monoplane, a Blériot "Seaplane" (two-seater), and a Blériot "Coque fuselage" monoplane, all with 80-h.p. Gnome motors, also a sand yacht.

The tandem two-seater is too well-known to require description, and has more records to its credit than there is space to mention here. The "Total Visibility" type machine is an exact replica of the type XI, except that the wings are raised in the "parasol" manner and a view is given to the pilot both above and below. The seaplane is again of the standard type XI, but the wheelbase has been widened and floats are fitted to the standard Blériot chassis. These can be removed and replaced by wheels in a very short time. The Blériot "Coque fuselage" machine differs from previous Blériot types in the fuselage which is of circular section, embracing the engine and covered in completely, with great reduction in head-resistance. An excellent view is procured for the pilot, and the passenger can lie prone on the body and make observations from the window provided for that purpose.



One of the new Maurice Farman "Shorthorns" at Yarmouth. Commander Samson, R.N., as pilot. Lieut. Bone, R.N., on left, Mr. Horace Short in centre, and Lieut. Courtney, R.N.(O.C. Yarmouth Air Station) on right.



LEARN TO FLY

AT THE

VICKERS FLYING SCHOOL, BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

STAND No. 66,
Aero Exhibition, Olympia.

VICKERS, Limited,

Aviation Dept., Vickers House,
Broadway, Westminster, S.W.



VICKERS Flying School,
Brooklands.

THE BRISTOL COMPANY.

The British and Colonial Aeroplane Co., Ltd., better known as the Bristol Co., will show a single-seated "scout" biplane with aileron control and an 80-h.p. Gnome engine. Also a tractor biplane with an 80-h.p. Monosoupape Gnome in which the engine cowl is brought right forward, and a revolving portion projects beyond the propeller boss. Warping planes are used. This machine is longer and larger in the fuselage than in previous types.

The firm is also showing a fully equipped aeroplane repair wagon, built throughout, including engine and chassis, at the firm's Brislington works.

CLEMENT-BAYARD

M. Clément-Bayard, through his British representatives, Messrs. DelaCombe and Maréchal, shows an armoured single-seater monoplane scout. It is built entirely of steel, and the cowl passing entirely round the engine is of bullet-proof nickel steel. The fuselage is similarly armoured to the back of the seat.

THE EASTBOURNE AVIATION CO., LTD.

This firm is to show a new tractor biplane with an 80-h.p. Gnome, from which a speed of 85 m.p.h. is expected. With Mr. F. B. Fowler's and Mr. Gassler's experience of practical flying, and Mr. Frank Hucks' engineering experience behind it, this machine is sure to be worthy of attention. The method of securing the bracing wires will be found of special interest, and the arrangements for quick packing for transport are particularly neat.

THE GRAHAME-WHITE AVIATION CO., LTD.

Type No. 10, the well-known G.-W. "char-à-banc" is shown fitted with the 100-h.p. Green engine with which Mr. Carr won the British Michelin Cup in 1913. With an Austro Daimler of 120-h.p. this machine has carried six, seven, and nine passengers in addition to the pilot, and has flown from Hendon to Brooklands and back with five passengers. Also it has flown to Folkestone with four on board. Only the centre section is shown, owing to the enormous span of the complete machine.

The second machine shown is type No. 11—a new propeller biplane designed for military work, and fitted with a 100-h.p. Gnome (monosoupape). Special attention has been given to the provision of a clear field of view for both pilot and passenger, and at the same time to achieve that high efficiency generally associated with the tractor type of machine. With pilot, passenger, and three hours' fuel and oil it is expected to show a speed range of 42 to 80 m.p.h., and a climbing rate of 1,000 feet per minute. In addition, the Grahame-White

Aviation Co. will exhibit a British-built Morane-Saulnier Parasol monoplane—for which make they have the sole British rights.

HAMBLE RIVER, LUKE & CO., LTD.

Messrs. Hamble River, Luke & Co., Ltd. show a seaplane (150-h.p. N.A.G. engine) and an aeroplane dinghy—also samples of Normale propellers, together with motor boats and engines.

The seaplane exhibited is of large size, having a span of 60 feet and a total surface of nearly 700 square feet. She is of the normal "pusher" type with twin floats. Special attention has been given to securing an ample factor of safety in all parts without the addition of undue weight, by the careful selection of material employed, as is shown by the fact that so large a machine, whilst possessing a minimum factor of safety of 8, weighs only 1,300 lbs. empty. The floats are worthy of special attention, being built by a firm with a large experience in the manufacture of high-speed boats of all kinds, and are extremely light although amply strong.

The aeroplane dinghy is constructed to be carried on a seaplane and will accommodate two persons in reasonably smooth water. Its weight is only 30 lbs. including paddles. To the seaplane pilot let down by a defective engine with a wind blowing off shore, such an accessory may mean saving his life.

THE NIEUPORT (ENGLAND), LTD.

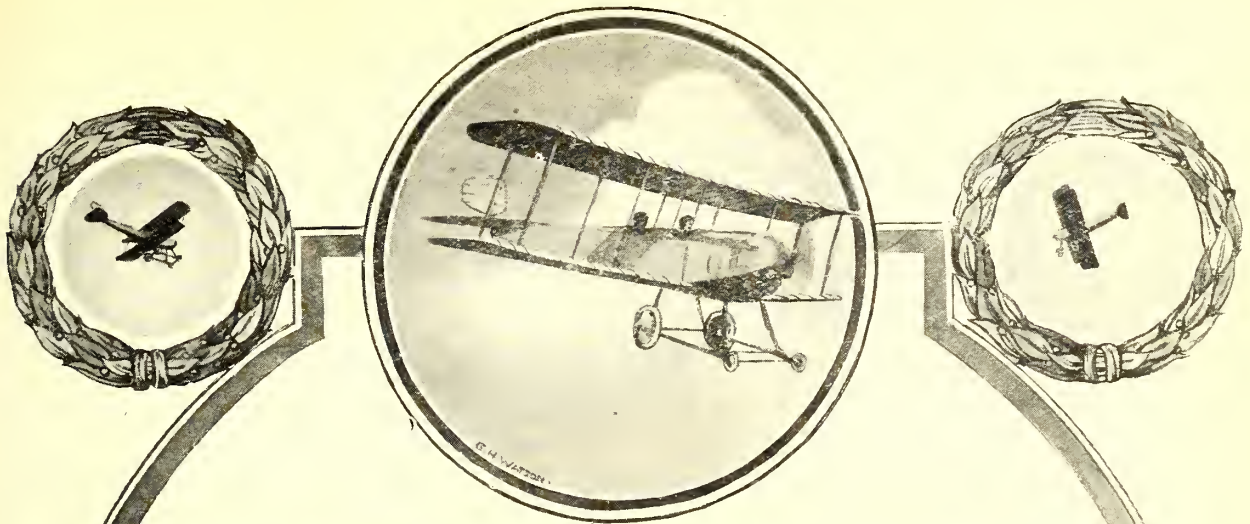
This famous French firm shows a single-seater Nieuport monoplane (60-h.p. Le Rhone) and a two-seater Nieuport Seaplane (80-h.p. Le Rhone), and an 160-h.p. Gnome engined "skimmer." These machines are of the well-known Nieuport type. The single-seater, with 60-h.p. Le Rhone, has a speed of 84 miles per hour and is fitted with the new form of chassis shown at the Paris Show. The seaplane is fitted with twin main floats and a tail float, and has a speed of 65½ m.p.h., with an 80-h.p. Le Rhone. M. Bonnier's Paris-Cairo flight, M. Legagneux's height record, M. Levasseur's waterplane tour of Eastern Europe, and other fine performances of recent date bear witness to the qualities of the Nieuport aeroplanes, which, one learns, are to be built in this country as well as in France.

PERRY, BEADLE AND CO.

This firm, who are welcome newcomers to the trade, will show a two-seater flying boat of novel design. With a total area of 290 sq. ft., and a 60-h.p. engine, a speed of 65½ m.p.h. is expected. Although we have no description of this boat available, we have reason to suppose it will be well worthy of examination, as both Mr. Perry and Mr. Beadle have had considerable practical experience with aeroplanes, the former



The new Bristol single-seater "Scout" (80-h.p. Gnome) at Lark Hill. Mr. Harry Busteed as pilot, Mr. F. S. Barnwell (the designer) in front, and Mr. Stutt, the new Australian pilot, behind the fuselage.



**THE MOST INTERESTING EXHIBIT
AT OLYMPIA IS**

STAND 43

**THE BRITISH & COLONIAL
AEROPLANE Co., Ltd.**

CONTRACTORS TO
THE BRITISH WAR OFFICE AND ADMIRALTY

Also to the Governments of
**RUSSIA, GERMANY, ITALY, SPAIN,
TURKEY, BULGARIA, ROUMANIA,
AUSTRIA, ETC.**



LEARN TO FLY ON THE BRISTOLS
AT THEIR FLYING SCHOOLS AT
SALISBURY AND BROOKLANDS.

THE SAFEST AND MOST UP-TO-DATE SCHOOLS IN THE COUNTRY.

as a pilot of much ability, and the latter as a practical designer who left the Royal Aircraft Factory, evidently in search of a wider field for his ability. Together they have already produced at least one very useful flying machine, so that their machines are well past the experimental stage.

A. V. ROE AND CO., LTD.

A. V. Roe and Co., Ltd. Manchester, show an "Avro" 80-h.p. scout, an "Avro" 80-h.p. "pusher" biplane, and an "Avro" 80-h.p. tractor seaplane, all with Gnome engines.

The first machine is a development of the 80-h.p. tractor Avro type which has proved so successful. The outstanding novel features are swept-back wings giving a certain amount of inherent stability, reduced overall dimensions and a novel system of bracing, which keeps head resistance to the minimum while maintaining the strength of the structure unimpaired by distributing the load evenly on both front and rear spars. A speed of 95 to 100 m.p.h. is expected with a minimum of 35-40 m.p.h., rendering the machine excellent for high speed scouting work in broken country.

The "Pusher" biplane is a new departure for this firm. It is generally on standard lines for this type, but shows Mr. Roe's usual fertility of invention as regards details. The chassis is of the Avro standard type (in itself rather a novelty, as the central skid arrangement is rare if not unknown on propeller machines). The nacelle covering is curved back, completely enclosing the engine, and is of excellent streamline form and carries in front a machine gun, which has an excellent field of fire. Pilot and passenger both have a very wide angle of vision while being well protected from the inclemencies of wind and rain. Fitted with an 80-h.p. Gnome and full load (fuel for $4\frac{1}{2}$ hours), a speed range of 65 to 35 m.p.h. is expected, combined with the characteristic "Avro" climbing capacity.

The seaplane is, generally speaking, the well-known 80-h.p. Avro on which Mr. Raynham has been astonishing the flying world, but fitted with twin sprung floats. The details of the springing merit special attention though the whole machine will amply repay the most detailed inspection.

SOPWITH AVIATION CO., LTD..

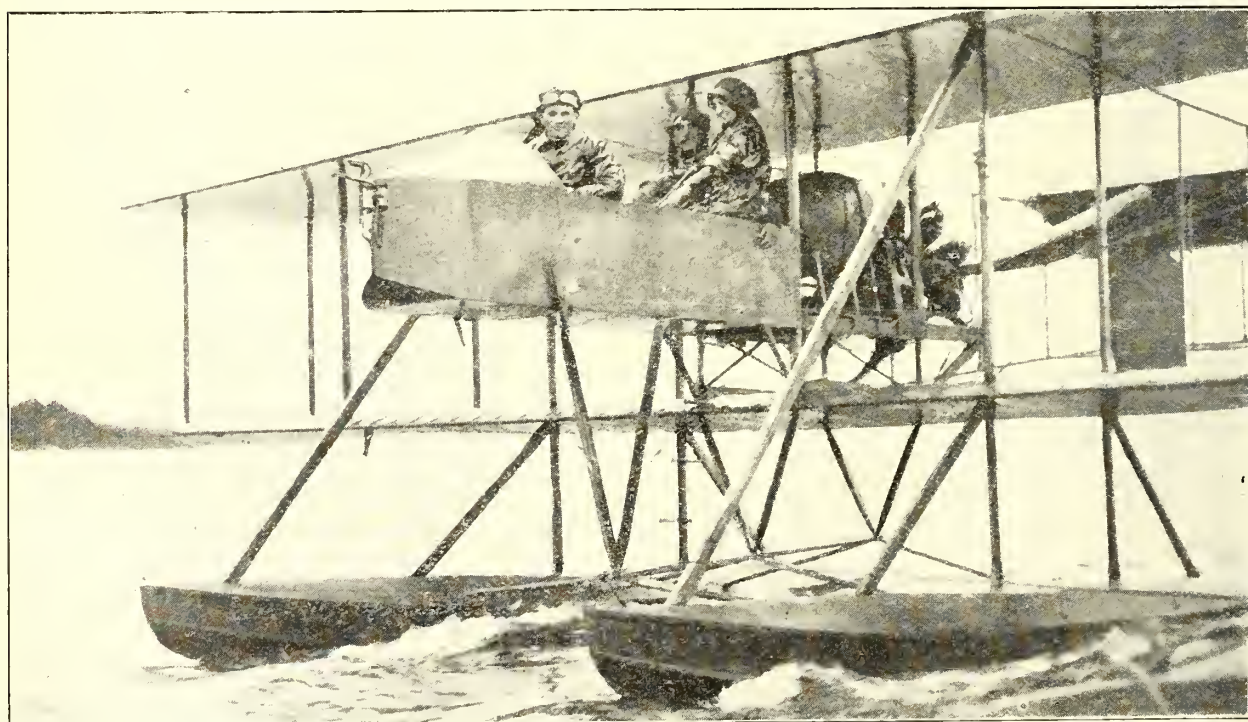
On this stand will be found a specimen of the Sopwith Bat-Boat fitted with a 200-h.p. Salmson (Canton-Unné) motor. This machine is fitted with a wireless outfit, and has been specially built to the order of the Admiralty. Carrying a useful load of 1,000 lbs., it has a speed range of 40 to 70 m.p.h. The Bat-Boat is the one distinctively British type of flying-boat, and the two examples already built and flown have been proved very successful in bad waters. Sopwith design and construction is of such high class that this exhibit deserves special attention.

J. SAMUEL WHITE AND CO., LTD., OF COWES.

This famous firm of torpedo-boat builders show a Wight Seaplane (200-h.p. Salmson). This machine has been described by pilots of experience as the "finest seaplane yet made," and is certainly one of the best in the world. Special points of interest are the double camber planes—due to Mr. Howard T. Wright, and the floats, which are a successful compromise between a boat and a hydroplane. The machine has a span of 63 ft., and overall length of 33 ft., and weighs, fully loaded, 3,400 lbs. Her speed range is conservatively estimated as 40 to 70 m.p.h. The performance of this type of machine is sufficiently well known to absolve us from any necessity to do more than draw attention to its presence.

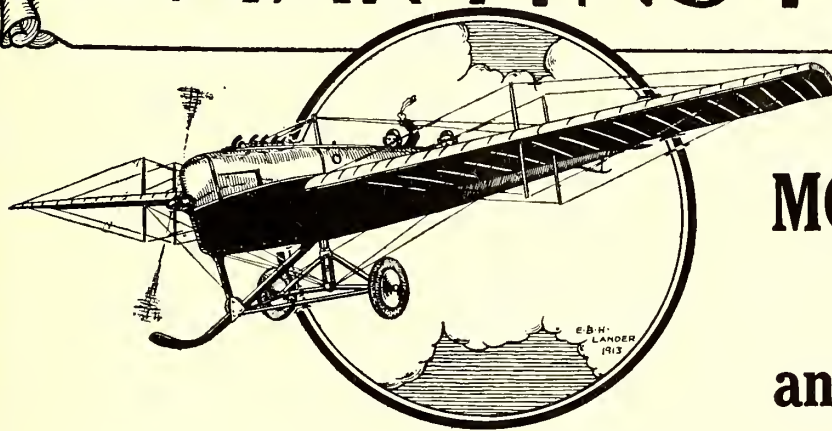
VICKERS, LTD.

The great armament firm will show their new Scout biplane, a tractor of very small size, fitted with a 100-h.p. Monosoupape Gnome. A very wide angle of view is secured for the passenger. A high speed of 100 m.p.h., a low speed of 50 m.p.h., and a climbing speed of 800 ft. a minute are predicted for this machine. Also one of their armed biplanes, fitted with the same engine, will be shown. This machine, carrying pilot, gunner, gun and 300 rounds of ammunition, has a speed range of 45 to 70 m.p.h., and climbs at 400 ft. per minute. Constructed entirely of steel, this machine may be regarded as an example of the most up-to-date "war-plane" design. Messrs. Vickers are also showing "Vickers-Levasseur" air screws, for which they have the sole English rights.



The Wight Seaplane (160-h.p. Gnome) piloted by Mr. Gordon England, with Mrs. Gordon England and Mr. Howard Wright (the designer) as passengers.

The MARTINSYDE



MONOPLANES and BIPLANES

FOR

HIGHEST QUALITY MATERIAL
BEST CLASS WORKMANSHIP
EASE IN FLYING
COMFORT FOR PASSENGER
AERODYNAMIC EFFICIENCY
SOUND ENGINEERING
INTELLIGENT CONSTRUCTION

Speed range of Monoplane with 120 h.p.

Engine, 40 to 90 miles per hour.

MARTIN & HANDASYDE

BROOKLANDS, WEYBRIDGE, SURREY.

The Aeroplanes at Olympia.

EXHIBITED BY	TYPE OF MACHINE,	MOTOR	SPAN	OVERALL LENGTH	TOTAL SURFACE	WEIGHT EMPTY	USEFUL LOAD	SPEED	FUEL CAPACITY	NOTES
The Aircraft Co., Ltd.	Maurice Farman (Short-horn) 2-seater (Biplane)	70 h.p. Rena ult	50 ft.	29 ft.	620 sq. ft. about	—	—	60 m p.h.	—	No front elevator, monoplane tail.
" "	Henri Farman Seaplane	30 h.p. Gnôme	60 ft.	29 ft.	—	—	—	55-60 m p.h.	—	Twin floats sprung, Rouzet wireless outfit
Pemberton Billing	Supermarine "P.B.I." single-seater (biplane)...	50 h.p. Grôme	—	—	300 sq. ft.	—	—	—	—	Flying boat.
Blackburn Aeroplane Co	Blackburn Monoplane 2-seater	80 h.p. Gnôme	38 ft.	28 ft. 6 in.	252 sq. ft.	950 lbs.	550 lbs.	40-70 m p.h.	—	
Bleriot Aeronautics	Bleriot type XI-2 tandem 2-seater (monoplane)	80 h.p. Grôme	34 ft. 2 in.	27 ft. 8 in.	210 sq. ft.	Full load	725 lbs.	72 m.p.h.	3½ hours	
" "	Bleriot, total visibility type (monoplane)	—	—	—	—	—	—	—	—	Parasol type.
" "	Bleriot Seaplane 2-seater (monoplane)	80 h.p. Gnôme	26 ft. 4 in.	29 ft. 7 in.	263 sq. ft.	Full load	1120 lbs.	68 m.p.h.	3½ hours	Type XI 2 fitted on floats
" "	Bleriot, Coque fuselage, 2-seater (monoplane)	80 h.p. Gnôme	—	19 ft. 8 in.	205 sq. ft.	Full load	720 lbs.	75 m.p.h.	4 hours	No particulars of speed
British & Colonial Aeroplane Co., Ltd.	Bristol Scout (biplane)	80 h.p. Gnôme	21 ft.	19 ft.	162 sq. ft.	638 lbs.	350 lbs.	—	—	Monosouape
" "	Bristol Tractor Biplane	80 h.p. Gnôme	37 ft.	28 ft. 6 in.	104 ft. area.	990 lbs.	—	—	—	Armoured engine and seats.
Clément-Bayard	Monoplane Scout	100 h.p. Gnôme	—	—	—	850 lbs.	—	77 m.p.h.	—	
Eastbourne Aviation Co., Ltd.	Tractor Biplane	80 h.p. Gnôme	36 ft. 6 in.	28 ft. 6 in.	250 sq. ft.	—	—	85 m.p.h.	—	
Grubane-White Aviation Co.	Propeller biplane 5-seater	100 h.p. Green	62 ft. 6 in.	38 ft. 6 in.	849 sq. ft.	2000 lbs.	1000 lbs.	51-30 m.p.h.	—	The char-a-bancs.
" "	Propeller biplane 2-seater	100 b.p. Gnôme (monosouape)	37 ft.	26 ft. 6 in.	370 sq. ft.	1000 lbs.	500 lbs.	80 m.p.h.	—	Gear down propeller.
" "	Morane Saulnier (monoplane)	80 h.p. Le Rhône	—	—	—	—	—	—	—	Parasol.
Hamble River, Luke & Co.	Propeller Seaplane 2-seater (biplane)	150 h.p. N A G	60 ft. top 53 ft. bottom	30 ft.	678 sq. ft.	1300 lbs.	1250 lbs.	32-65 m.p.h.	5 hours	Instruments, anchor and cable bomb dropper & capacity for 200 lbs. for wireless, etc.
The Nieuport (Eng.), Ltd.	Nieuport single-seater (monoplane)	60 h.p. Le Rhône	29 ft 6 in	—	155 sq. ft.	595 lbs.	352 lbs.	84 m p.h	—	New chassis.
" "	Nieuport Seaplane, 2-seater (monoplane)	80 h.p. Le Rhône	39 ft.	—	255 sq. ft.	991 lbs.	616 lbs.	65 m.p.h.	—	Two main floats, one tail floats.
Perry, Beadle & Co	Flying Boat 2-seater (biplane)...	60 h.p. —	35 ft. top 23 ft. 3 in. bottom	—	290 sq. ft.	1100 lbs.	500 lbs.	67.3 m.p.h	—	
A. V. Roe & Co., Ltd.	Avro Scout, single-seater (biplane)...	80 h.p. Gnôme	26 ft.	—	235 sq. ft.	675 lbs.	490 lbs.	100-35 m.p.h	—	Swept back wings.
" "	Avro, Propeller make, 2-seater (biplane)...	80 h.p. Gnôme	44 ft.	—	468 sq. ft.	1000 lbs.	800 lbs.	65-35 m.p.h.	4½ hours	
" "	Avro Seaplane 2-seater (biplane)...	80 h.p. Gnôme	36 ft.	—	330 sq. ft.	950 lbs.	650 lbs.	83-30 m.p.b.	3 hours	Twin floats, rubber suspended.
Sopwith Aviation Co., Ltd.	Bat Boat (biplane)	200 h.p. Salmson	—	—	—	2200 lbs.	1000 lbs.	40-70 m.p.h.	—	Fitted with wireless set.
J. Samuel White & Co., Ltd	"Wight Seaplane" 3-seater (biplane)...	200 h.p. Salmson	63 ft. 27 ft. 9 in.	33 ft. 20 ft. 7 in.	789 sq. ft. 240 sq. ft.	Full load 1200 lbs	3400 lbs. loaded	40-70 m.p.h. 100-50 m.p.h.	—	
Vickers, Ltd.	Scout Biplane Tractor	100 h.p. Gnôme (monosouape)	—	—	—	—	—	—	—	
" "	Armed Biplane	100 h.p. Gnôme (monosouape)	37 ft.	27 ft. 6 in.	385 sq. ft.	960 lbs.	800 lbs.	70-45 m.p.h.	4½ hours	300 rounds of ammunition and gun.

ELIMINATE ENGINE ECCENTRICITIES

by having the latest

6-CYLINDER 120 H.P.

GREEN

Which by reason of the LOW
Petrol and Oil consumption and
HIGH efficiency is, when equipped
for a flight of

500 MILES OR MORE

The LIGHTEST and most RELIABLE Aerial Motor.

6 OR 60 HOURS' TEST AS REQUIRED.

Engines Tested under actual working conditions.

PETROL, OIL & WATER THE ONLY REQUIREMENTS—

The Engine will do the Rest.

WE SHALL BE GLAD TO SEE YOU AT OLYMPIA
STAND 85.

8165 GERRARD.
1293 RICHMOND.

GREEN ENGINE CO., LTD.
166, Piccadilly, W.

ENGINES.

Beardmores, Ltd., show one 90-h.p. and one 120 h.p. Beardmore-Austro-Daimler aero-engine. Both engines are of the stationary, water-cooled type, having 6 cylinders in line of 120 mm. by 140 mm., and 120 mm. by 175 mm. respectively, and are supplied as a complete unit, including radiators. The complete weight of each such unit with all fittings, including radiator and water in same, is $4\frac{1}{2}$ lbs. per h.p., and the engines will give from 15 to 20 per cent. in excess of their rated power. The extremely fine performances of these engines will ensure their obtaining the attention they deserve.

The Brompton Motor Co. show an 85-h.p. Benz aero-motor.

M. Clément-Bayard, through his British representatives, DelaCombe and Maréchal, will show one 250-h.p. motor for dirigibles, weighing 864 lbs. This motor has six cylinders, cast in steel in one piece, with copper water-jackets, and has a single overhead camshaft operating the valves, which are inclined at 45 deg. It is fitted with two sets of spark plugs per cylinder, has a decompressor for easy starting, and is pressure lubricated throughout.

The Dudbridge Ironworks Company, of Stroud, show the Salmson (Canton-Unné) engines. These are a 200 h.p. 14-cylinder, a 150 h.p. 9-cylinder, a 130 h.p. 9-cylinder, and a 90 h.p. 7-cylinder, all stationary water-cooled radials. The Salmson firm have taken the lead in the production of high-powered motors and have met with great success, and their stand will be of enhanced interest in view of the fact that these motors are now being built in England.

The engines on exhibition will be one "type M.7" engine, 90 b.h.p., 7 cylinders radial, 120 mm. bore, 140 mm. stroke, 1,250 revs., with all cylinders and valve gear carved out to show the functioning of the engine; one "type M.9," 130 b.h.p., 9 cylinders, 120 by 140, at 1,250 revs.; one type "2 M 7," 200 b.h.p., 14 cylinders, 120 by 140, at 1,250 revs.; one type "B 9," horizontal axis, 150 b.h.p., 9 cylinders, arranged with the stroke parallel with the axis of the engine, 120 by 150, at 1,250 r.p.m. The driving shaft of the engine is provided with a species of wobble gear, driving the propeller shaft through a bevel so that it can be inclined at any desired angle.

Also a "D" type engine 300 b.h.p., 9 cyls. 150 by 210, at 1,200 r.p.m. This will be the biggest aero engine in the Show. In this engine the cylinders lie horizontally and radially round the vertical crankshaft, which drives the propeller shaft through a bevel gear, which is arranged so that the angle of inclination of the shaft to the horizontal can be varied if desired.

The Gnome Engine Company show a 100-h.p. Monosoupape type and an 80-h.p. standard type. The 80-h.p. Gnome motor is too well known to require description here, while the Monosoupape type has been described previously to the best of

our ability in view of the fact that its operation has not been made public.

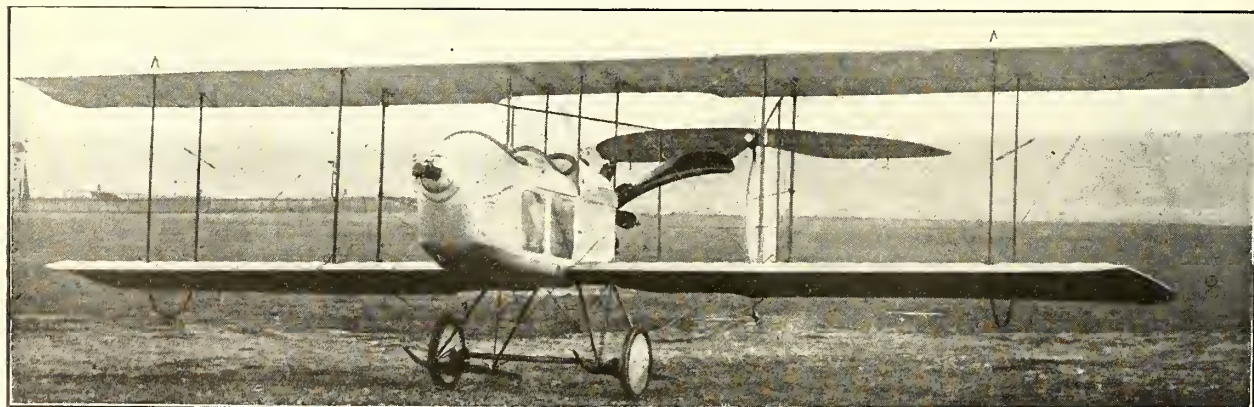
In this motor the admission valves are suppressed and their place taken by ports in the cylinder walls, which are opened at the appropriate times. This construction leads to considerable improvement in fuel economy, greater flexibility and better cooling.

The Green Engine Co., Ltd., show two 120 h.p. 6-cylinder Green aero-motors, one 60-70 h.p. 4-cylinder Green aero-motor, and one $2\frac{1}{2}$ h.p. water-cooled engine and MacKie alternator for wireless plants. These engines are of the well-known type which have won all the British Michelin prizes except one, and with which Mr. Hawker so nearly flew round Britain last summer. The bore and stroke are, in the 120 h.p., 140 by 152 mm, and in the 60-70 h.p., 140 by 146 mm. Vertical cylinders with spun copper jackets and overhead valves are used. One engine will be that which will compete in the forthcoming Military engine trials. In addition this stand will show one of the 60-70 h.p. engines dissembled into its component parts.

Milnes-Daimler-Mercédès, Ltd., show one 100 h.p. 6-cylinder Mercédès aero-motor. This motor is of the type which has successfully carried so many German pilots through the astonishingly long flights recently made in the Fatherland, including Ingold's world's record non-stop flight of 16 hrs. 20 mins. The bore and stroke are 120 and 140 m.m., and the engine runs at 1,350 r.p.m. (105 h.p.). The weight complete is 458 lbs. The cylinders are vertical, cast in pairs.

The Statax Engine Co. show one 40-h.p. Statax aero-engine, and one 6-h.p. Statax engine for portable wireless plant. The 40-h.p. engine is a 5-cylinder rotary engine in which the cylinders lie parallel to the axis of the crank-shaft, presumably driving through some form of "wobble" gear. The makers state the weight complete as 200 lbs. and guarantee eight hours' run at full load. The 6 h.p. is a 3-cylinder motor of the same type, weighing 60 lbs., and is designed for driving a dynamo for portable wireless plants.

The Sunbeam Motor Co., Ltd., show a 150-h.p. Sunbeam aero motor and a 225-h.p. Sunbeam aero motor. The 150 h.p. motor is of the same type as the one recently purchased by the R.A.F., after a series of tests extending over several months, and is generally similar to that flying the Sunbeam Company's Maurice Farman at Brooklands. The bore and stroke are 90 by 150 mm., weight 480 lbs., petrol consumption 0.6 pint per h.p. hour, giving 150 b.h.p. at 2,000 r.p.m. The cylinders are of cast iron with copper deposited jackets, valves side by side, set in two blocks of four each V type. The 225 h.p. has 12 cylinders in V, cast in four blocks of three each, and is of the same bore and stroke as the 150 h.p., and develops its rated power at 2,000 r.p.m. Both engines are fitted with a built-in 2 to 1 reduction gear, solidly and substantially made, with adequate thrust bearings.



The Vickers Gun-carrying biplane, with 100-h.p. Gnome engine. This machine is built almost entirely of steel, only the spars being of wood. The frame of the nacelle is of steel tube to prevent any chance of damage to pilot or passenger by splinters in case of a bad landing. The tubular struts are of a special streamline section.

ANZANI AERO ENGINES

AS USED BY H.M. ADMIRALTY, WAR OFFICE AND AUSTRALIAN GOVERNMENT, Etc.

NEW CATALOGUE OF 1914 MODELS NOW READY

Apply

STAND 48 OLYMPIA.

CONTRACTORS TO H.M. ADMIRALTY & WAR OFFICE,
AUSTRALIAN, ITALIAN AND GREEK GOVERNMENTS.

PASSENGER FLIGHTS

"RA+ID" PROPELLERS

"GNOMOL" CASTOR OIL

"G.A.C." AERO TYRES

"G.A.C."

AERO SUPPLIES of
Every Description

48

OLYMPIA

*Ask for
New 1914
Catalogue.*

SPECIALISTS &

30, REGENT STREET, PICCADILLY CIRCUS, S.W.

OLYMPIA:—March 16th to 25th, 1914.

And at MILAN, 8, VIA CESARE CORRENTI.



EXHIBITION FLIGHTS

"REGY" PROPELLERS

"ROOLD" HELMETS, &c.

"G.A.C." AERO WHEELS

"G.A.C."

AERO SUPPLIES of
Every Description

48

OLYMPIA

*Ask for
New 1914
Catalogue.*

CONSULTANTS

EMAILLITE

THE WORLD-WIDE PREMIER DOPE.

As Extensively used by

H.M. ADMIRALTY, WAR OFFICE & AUSTRALIAN GOVERNMENT

And the Governments and Constructors of FRANCE, GERMANY, RUSSIA, AUSTRIA, ITALY, SPAIN, Etc.

Enquire for 1914 Catalogue at

STAND 48 OLYMPIA.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

ACCESSORIES.

The General Aviation Contractors, being concerned with such diverse accessories to aviation as Anzani engines (of about a dozen different sizes), Emaillite dope, Gnomol oils, Roold helmets, and a thousand and one minor details, and finding that their alternatives were either a stand as comprehensive and as large as a department store or an office where one could talk business on the assumption that the prospective buyer already knows the goods he is thinking of buying, have decided on the latter, and so their exhibit will consist of themselves. Mr. Ridley Prentice and Mr. Bailey will be pleased to see all who are interested in their goods.

The Anglo-American Oil Company show Pratt's motor spirit.

Boulton & Paul, of Norwich, are a household word in connection with light building work, ranging from cycle-sheds to hay-barns, via motor garages and boat-houses. This firm is now prepared to build hangars for aeroplanes and bungalows wherein aviators and their assistants may live in comfort. Those who are thinking of equipping flying grounds will learn much to their advantage at the firm's stand.

The British Petroleum Co., Ltd., will show Shell and Crown motor spirit packed for distribution; Swan spirit for air-gas plants; heavy oils for internal combustion engines; models of derricks and drilling gear and a model tank steamer.

Brown Bros., Ltd., show lathes and small tools of various kinds, copper and steel tubing and a variety of materials of use in aeroplane construction, and the Brolt lighting dynamo. Amongst other items of interest the Rapid valve truer will appeal to all those who run internal combustion engines.

Burroughs Wellcome and Co., Ltd., the famous "Tabloid" firm, are showing a collection of "first aid" equipments of all sizes. Of particular interest is Tabloid first aid outfit No. 706, wherein, in a space not exceeding that of a fair sized cigarette case are all the essentials for properly treating the majority of minor injuries, while the larger size is a veritable dispensary.

Cellon, Ltd., will show their well-known dope in various grades, Cellon varnishes for various purposes, transparent "Cellon" sheet, fireproofing dope, etc., and a selection of photographs of machines employing these specialities.

Robert W. Coan, who "casts clean crank cases," is exhibiting many accessories cast in aluminium, in which he specialises, including pulleys, chain covers, pinion caps, bearings, and sundry aeroplane fittings "cast in chill." He also shows examples of his art in the form of crank cases, gear boxes, etc., and samples of his method of repair to broken aluminium parts, which consists in casting in new pieces and not in welding on the old.

Dovers, Ltd., will show a large assortment of their "Exonite" accessories, Dover steering wheels, Exonite levers, "Non-flam" Doverite dopes and varnishes for aeroplanes, and stranded wires covered with "Exonite."

Hewlett and Blondeau show various small parts and material for aeroplanes, chiefly of French make.

Messrs. Dunhills will exhibit a selection of aviatic apparel, for which they have invented the cacophonous name of "Avorites," which is as repulsive as the actual things are attractive and comforting to the wearers. Messrs. Dunhills are also showing aviation compasses, barographs, maps, etc.

The Integral Propeller Co., Ltd. represent M. Chauvière whose propellers of all types are here to be seen. Of special interest is M. Chauvière's new variable pitch propeller, a special quickly attachable propeller boss, and an armoured propeller for warplanes. The majority of records are held by Integral propellers, so that the exhibit is of importance to all.

Wm. Mallinson and Sons, Ltd., are showing specimens of timber suitable for aeroplane construction. Messrs. Mallinsons' large stock and great experience enable them to supply the most suitable timber for any class of work.

Richard Melhuish, Ltd., will exhibit small tools of all varieties. Amongst others worthy of note are the wire-cutters recently referred to in these pages.

The Motor Radiator Manufacturing Co. make Zimmerman radiators for water-cooled engines, and their work is ever above reproach. For this type of radiator the makers claim substantially lower head resistance than is shown by any other

type, and they show examples of radiators made for various machines and engines. Of interest in connection with airships is the exhaust condenser, whereby water vapour is condensed and kept to make up for the loss of weight of petrol, hence avoiding the loss of gas to compensate for diminished weight.

Lang Propeller, Ltd., are to show examples of their standard propellers, of their patent locked copper tipping for hydro propellers, of fabric tipped propellers, and two B.E. 4-bladed propellers, one complete and one in course of construction. This is the only purely British firm whose sole activity is the making of propellers.

The North British Rubber Company show aeroplane fabrics of all kinds, as well as balloon cloth. This firm can also be recommended for rubber boots for aerodrome work.

Nicole Nielsen and Co., Ltd., will show "Watford" revolution counters and a trip chronograph for aeroplanes, which shows time and on a small dial the actual trip time.

The Palmer Tyre, Ltd., will show the new Palmer Aeroplane Tyre, which was described in detail in these pages recently. A single tyre stands up to a load of a ton vertically plus a displacing thrust of a ton laterally without bursting or pulling off the rim. Such a tyre is well worth inspecting.

Joseph Owen and Sons, Ltd., show timber of all kinds suitable for aeroplane construction, also steam bent skids, etc. A special study has been made of timber for aeroplane work, and the high reputation of the firm is sufficient guarantee.

Rubery, Owen and Co. will have on exhibition a large stock of useful accessories, including their patent release gears, Fox's patent wire benders, a variety of strainers, eyebolts, cable ends, nuts and bolts, etc., and a selection of pressed steel fittings for aeroplanes. As one of the best equipped firms in the Midlands with enormous plant at their disposal, all interested in the manufacture of aeroplanes should make a study of their work, for in heavy press work especially, such as engine bearers and car frames, they are unsurpassed by any manufacturer here or abroad.

The Spiral Tube Company show tubular radiators.

The Stern Sonneborn Oil Co. show motor lubricants.

M. A. Tiano shows the Rouzet wireless telegraph apparatus, which has given excellent results here and abroad.

The Vacuum Oil Co. show Vacuum oils and greases in various forms, including some in patent cartridges, enabling gear boxes, etc., to be filled cleanly and quickly.

C. C. Wakefield and Co., who probably do the biggest business in aero-engine lubricants in this country, show their well-known "Castrol" motor lubricants. These exhibits are of special interest in that Castrol is used by nearly all the leading aviators, including Messrs. Hamel and Hucks.

Lectures at the Olympia Show.

A series of explanatory lectures entitled "How it Works," has been specially arranged by the Aeronautical Society of Great Britain, the scientific authority on aeronautics. Admission is free. The following is the provisional programme:—

March 16th, 7.30 p.m., "How an Aeroplane is Built," Mervyn O'Gorman, C.B., M.I.M.E., A.F.Ae.S., Supt., R.A.F. The Marquess of Tullibardine in the chair.

March 17th, 7.30 p.m., "How an Aeroplane Lifts," Bertram G. Cooper, A.F.Ae.S., Secretary A.S.G.B.

March 18th, 3.30 p.m., "How an Aero-Engine Works," A. Graham Clark, M.I.A.E., Technical Editor "Flight."

March 19th, 7.30 p.m., "How an Aeroplane is Steered and Controlled," Bertram G. Cooper, A.F.Ae.S., Secretary A.S.G.B.

March 20th, 7.30 p.m., "How an Aeroplane Upsets," Leonard Bairstow, A.R.C.Sc., N.P.L.

March 21st, 7.30 p.m., "How Aircraft are Used in War," Lieut.-Col. F. H. Sykes, A.F.Ae.S., O.C. Military Wing Royal Flying Corps.

March 23rd, 7.30 p.m., "How an Aeroplane is Propelled," F. H. Bramwell, B.Sc., A.F.Ae.S., N.P.L.

March 24th, 7.30 p.m., "How an Airship Works," Capt. C. M. Waterlow, R.E., A.F.Ae.S.

March 25th, 7.30 p.m., "How a Waterplane Works," G. Holt Thomas.

The lectures will be fully illustrated with lantern slides.

The BEARDMORE AUSTRO-DAIMLER AERO ENGINE

WHY YOU SHOULD SELECT IT.
Because in open competitions its superiority has been conclusively proved; over £20,000 in prizes having been won with this wonderful engine, which is now fitted to 22 different makes of aeroplanes.

The Beardmore Austro-Daimler Engine is the holder of over 20 records for Height, Speed and Duration, amongst which will be remembered the £5,000 prize in the Army Trials of 1912.

Consignments of this Engine have been supplied to practically every Continental Government. An order has recently been placed by the British Government for 24 of the 120 H.P. type.

Stand No. 87
AERO EXHIBITION
OLYMPIA

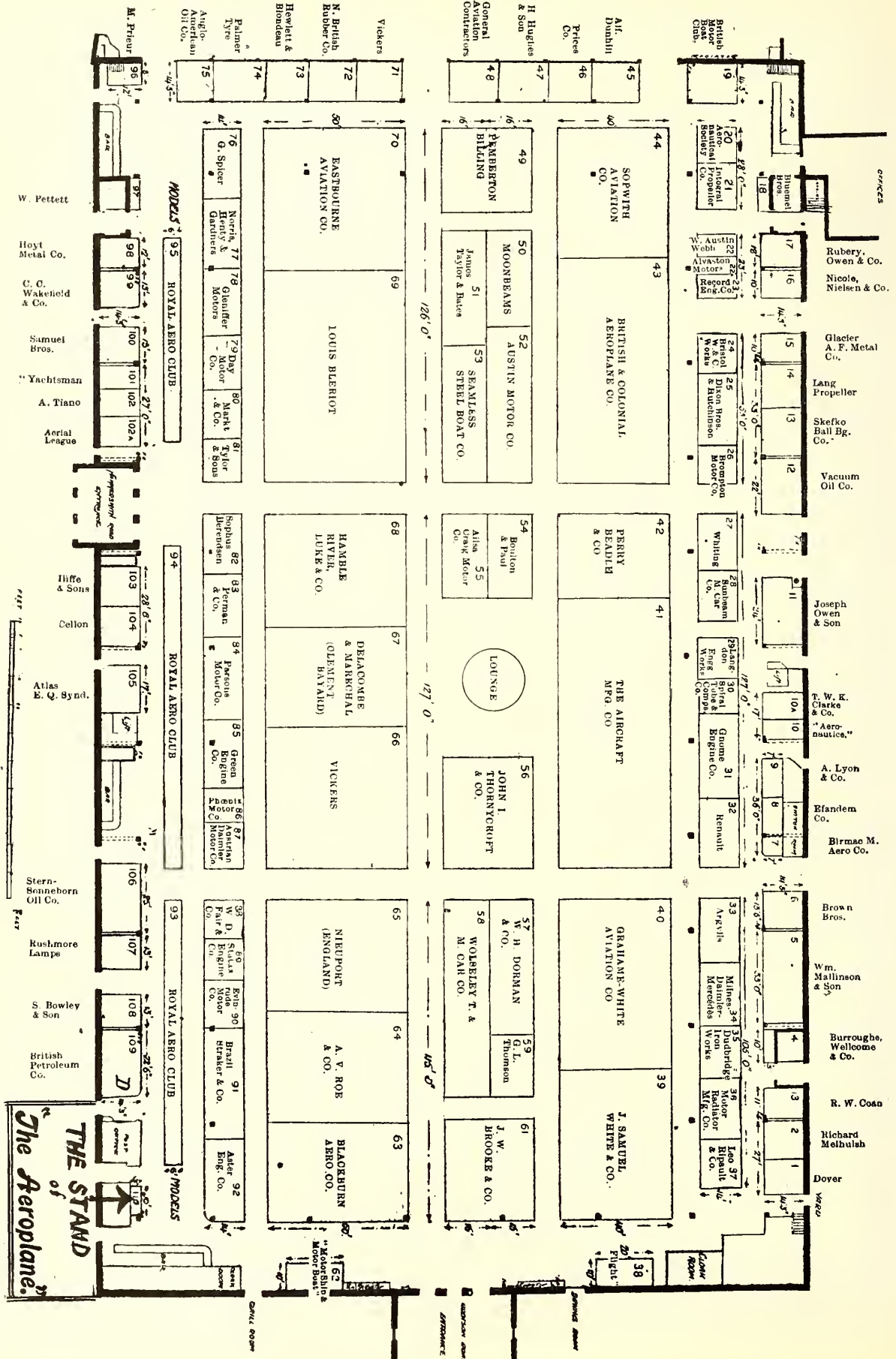
**Beardmore Austro-Daimler Aero Engine, Ltd.,
36, VICTORIA STREET, S.W.**

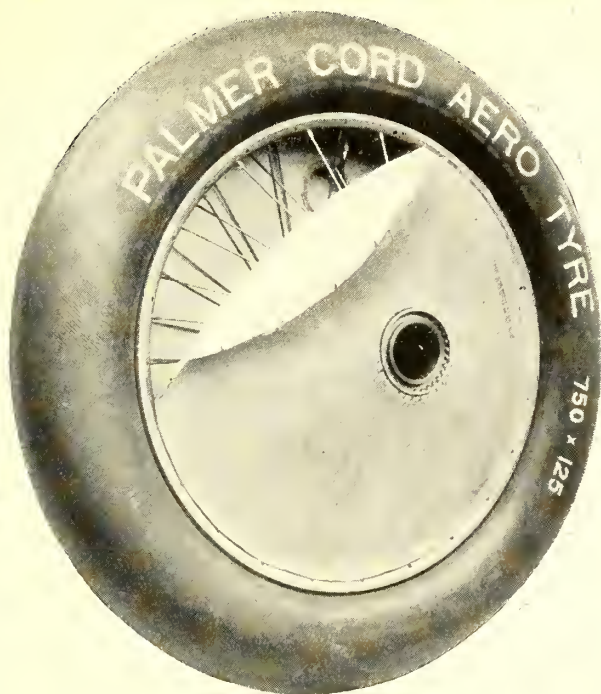
Selling Representatives—

**AUSTRIAN DAIMLER MOTOR CO., LTD.,
112, Great Portland Street, W.**

Telephone 238 & 239 Gerrard.

C.D.C.





**CONSTRUCTORS
and
AVIATORS**
should make a point
of visiting
STAND No. 74

The Exhibit will be of particular interest to all taking an interest in Aviation, one of the predominating features being

PALMER CORD AERO TYRES

(700 x 75 and 750 x 125)

Also Palmer Patent Aero Rims and Wheels, and
Palmer Patent Quick Detachable Wind Shields

Another important feature will be the specially designed and constructed apparatus demonstrating the enormous loads and side strains Palmer Wheels and Tyres are capable of withstanding

**THEREFORE MAKE A POINT OF
VISITING THE PALMER STAND**

PALMER TYRE LTD.

119, 121, 123, SHAFTESBURY AVENUE.

Telegrams: "Tyricord, Westcent, London."

Telephone: Gerrard 1214 (4 lines).

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Army Estimates and Aviation.

BY W. E. de B. WHITTAKER.

Another financial year is drawing to an end and once again the national accounts are being prepared for misrepresentation to Parliament that further provision may be made for another year. A Secretary of State for War will address the House in the course of a few days and tell of the great improvement in the King's Land Forces during the past year under his able management, and of how swift will be the progress of the coming year. By counting horses twice the cavalry is well equipped and by not replacing worn-out guns until the next financial year the artillery is left with great strength. The infantry does not need attention of any sort because the English are not interested in those who walk.

This year £1,000,000 has been set aside for Aviation in the Army Estimates. The exactitude of the sum gives it charm and reminds one wearily of the lurid poster of a propagandist body which disfigured London for a period of last year—the writer pleads to being partly responsible. But Colonel Seely could not have seen that. His selection of that sum is an act of pure genius entirely unrelated with any needs of the moment. It is the only round figure in the Estimates and one cannot avoid some suspicion of round figures. It seems as though those responsible, not knowing what was wanted, suggested any figure that seemed likely to stifle criticism.

The Army Estimates are designed with a view to prevent the outsider knowing anything of real interest as to military expenditure. Varying sums are lumped into one total to which is attached an entirely non-committal title impervious to all curiosity and inquiry. In all corps such as that dealing with aviation the purchase of matériel is one of the most important items. Aeroplanes, no less than pilots, are essential to the very existence of the Royal Flying Corps (Military Wing) and motor transport is required that those aeroplanes and their attendant parts should travel from place to place. Replacements of parts and engines is also a matter of some importance. Thus one looks with anxiety to the provision made in the Estimates for these varied purposes.

Last year a sum of £190,000 was set aside for this purpose and was found during the year to be entirely inadequate, as the critics (who ought to know least about it all) told Colonel Seely. This year the provision is a little more than doubled. Under the heading of "Aircraft, Stores and Materials, including Stores and Materials for Factory" (Vote 9, Subhead S), appears the figure £441,000. With this money has to be purchased aeroplanes, motors, spare parts, and all the infinite detail of matériel required to maintain the Royal Flying Corps in an efficient condition. Not only that, but out of the same sum the Royal Aircraft Factory has to be provided with the means to carry on elaborate experiments into the mysteries of aero-dynamics.

At the present moment the army possesses about 170 aeroplanes, including those employed on tuition work at the Central Flying School. According to Colonel Seely the Royal Flying Corps when up to establishment should have in possession

250 aeroplanes. Before the end of this financial year another twenty or thirty aeroplanes will have been delivered—possibly. This leaves a deficiency of fifty to make up. Add to this deficiency the estimated (again Colonel Seely's figures) replacement of 125 aeroplanes in the course of the year and it will be seen that the 1914-15 Estimates will have to bear the purchase of at least 175 aeroplanes.

The price—to strike an average—of aeroplanes supplied to the Army during the next year will not be far short of £1,200 apiece. Methods of construction may cheapen during the year, but the higher power of the engine used will make up for the saving made on the rest of the machine. The price in all probability will be in excess of the figure I name. One hundred and seventy-five aeroplanes at £1,200 each accounts for £210,000. Then a large number of engines and engine parts must be bought during the year. Not less than £50,000 will be required for this. The Royal Aircraft Factory should spend not far short of £100,000 on what may pass for experimentation and the maintenance of one aeroplane in many different forms but under its original number. Aeroplane spare-parts and the carrying out of repairs in any part of the country will account for a large proportion of what remains.

Assuming that during the coming financial year a distance of over 500,000 miles will be flown and that the average aeroplane costs about 3d. a mile in oil and petrol, the expenditure on fuel during the year will be at least £6,000.

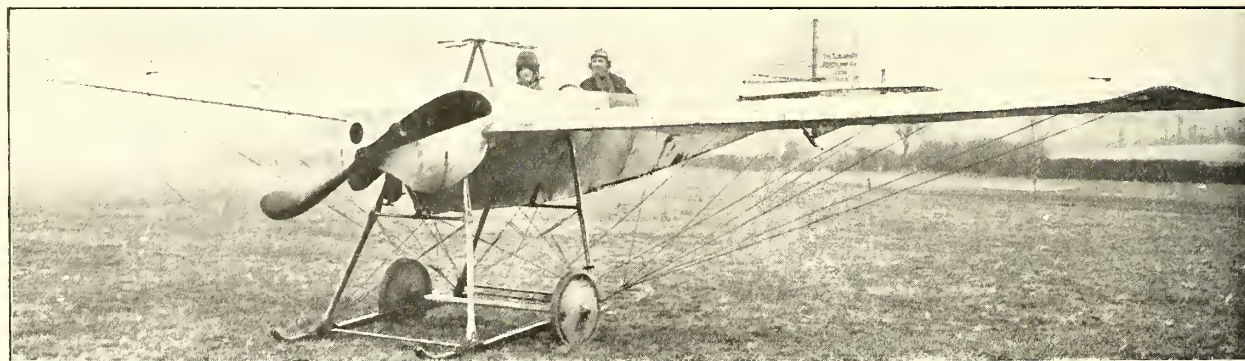
Thus the expenditure may work out roughly as follows, if my estimate is anywhere in the neighbourhood of accuracy:—

Aeroplanes	£210,000
Engines, and spare parts for aeroplanes and engines...	100,000
Repairs to aircraft (material, etc.)	25,000
Fuel	6,000
Royal Aircraft Factory experimentation, etc.	100,000

£441,000

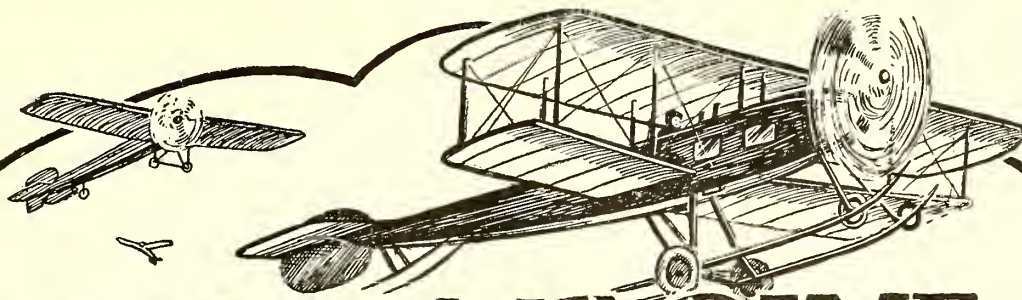
Under Vote 9 (Sub-head Q.) is given the "Establishment and Wages of Royal Aircraft Factory." This, as has already been stated, has increased from £44,000 last year to £82,000 this year, £38,000 more. Readers of last week's *AEROPLANE* will know this already. On paper the Staff salaries have only increased by £90. This is surprising when one thinks of the number of pilots employed at the Factory and of the number of other people whose names are known. The mystery is explained by the fact that these others come under the heading of Wages in which there has been an increase of £37,700 during the year. For the number of men employed one cannot argue that this is a big increase. But, then, neither can one admit that the men are reasonably paid. The waste of money at the R.A.F. certainly does not come under the head of wages.

Competing as it does with the manufacturers and building annually a large number of aeroplanes, the Establishment charges are not excessive. The trouble is that no figures in



The Blackburn Monoplane (80-h.p. Gnome) which is, curiously enough, the only British-designed monoplane in the Show.

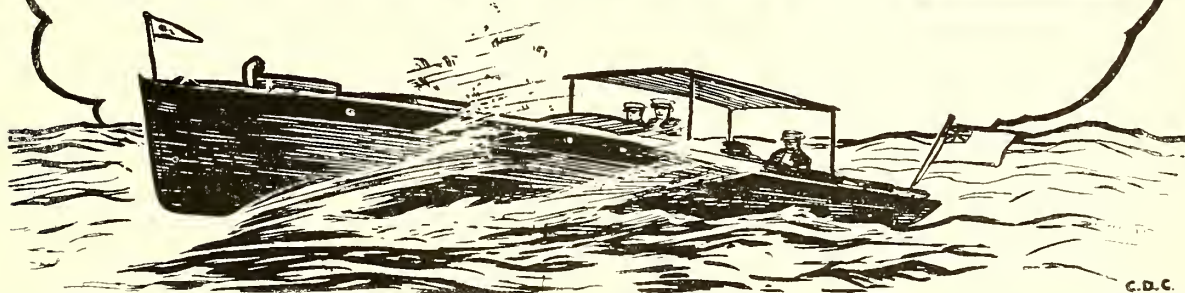
UNDER THE PATRONAGE OF H.M. THE KING.



AERO & MARINE EXHIBITION : OLYMPIA :

Organised by the
Society of
Motor
Manufacturers
and
Traders Ltd.

Supported by
The
Royal Aero
Club.



C.D.C.

Of exceptional Interest

Open

10

to

10

Band of
H.M.
Coldstream
Guards

Aircraft, Marine and
Rivercraft :: Aero,
Marine and Stationary
Engines & Accessories

POPULAR LECTURES ON AVIATION,
FREE CINEMATOGRAPH DISPLAYS

:: MODEL EXHIBIT BY ::
THE ROYAL AERO CLUB

March
16th to 25th

Admission

1/-

Caterers :
J. Lyons &
Co., Ltd.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

this year's or any other year's Estimates reveal what proportion of the Matériel Vote is to be spent by the R.A.F. on its own amusements and how much is to buy really useful matériel for the army. Experimenting is the most expensive amusement in the entire world, and, often, the least productive. The large sums which appear without detail in the Estimates are, of course, worked out by those responsible for the control of the Royal Flying Corps, but detail is omitted that an alteration of expenditure may be made without outside interference. Also such indefiniteness is designed to remove criticism in the House of Commons.

The new Inspection Department has an allowance for the first time. A sum of £14,000 is dedicated to its maintenance. I give the details in full:—

Vote 9, Sub-head R.
Inspection of Aeronautical Stores.

NUMBERS.		RATES OF PAY. ANNUAL.			1914-15.
		£			£
1	Chief Inspector	700			700
1	Inspector of aeroplanes ...	550			550
1	Inspector of engines ...	550			550
		MINM.	INCREM.	MAX.	
		£	£	£	
3	Assistant Inspectors ...	350	20	450	1,050
	Wages of Civilian subordinates ...				11,100
	Contingencies				30
	Health Insurance, payments for civilians ...				20
	Total				£14,000

To this must be added the travelling expenses of this department, which appear under another Vote but are not specified. The total cost of the Department during the year will fall not far short of £18,000. The amount saved to the country in the course of a few years by the expenditure on this inspection office will quite justify its existence should it, as now, remain in the hands of soldiers of integrity and knowledge. It will remove the possibility of a similar state of affairs to that common in France holding and ruining the aeronautical services in this country.

Mechanical transport for the Squadrons is allowed for under Vote 6, Sub-head M—Mechanical transport vehicles: supply and repair of mechanical transport vehicles, £117,000. Of this sum, £44,000 is set aside for aviation, the rest, of course, dealing with the army in general. With the £50,000 set aside in the Estimates for last year this sum should be adequate for the purpose stated.

Clothing, equipment, small arms, ammunition and so on are provided for by an allowance of £32,000, distributed between Votes 7 (Supplies and Clothing), 8 (Ordnance Department Establishments), and 9 (Armaments, Engineer Stores and

Aviation), but, naturally, again the figures are not specified. These are small questions and are certainly not open to criticism. There are a certain number of men in the Royal Flying Corps and they must be clothed, armed and equipped properly. The numbers dictate the amount of supplies.

This year for the first time the Estimates contain a summary of aviation expenditure for 1914-5, giving the Votes under which the items can be found. They are more easy to read in all save the big sum devoted to matériel. The proportions borne under certain votes that were previously unexplained, though it was obvious that there must be allowances, are now shown. Colonel Seely has left very little to chance, and obviously does not wish to expose himself to well-directed criticism again. He disarms his critics as well as may be.

One great relief for the new Estimates is the disappearance of the airships and the transference of the kites to Headquarters, R.F.C. The saving on airships makes the present provision for aviation far larger in proportion than was that of last year.

The total charge for aviation as set forth in the Annual Estimates is as follows:—

	1914-15 £	1913-14 £
Royal Aircraft Factory	82,000	44,000
Inspection	14,000	—
Aircraft, Stores and Materials	441,000	190,000
	537,000	234,000
Establishment of Royal Flying Corps, Military Wing (Votes 1, 6, 7, etc.) ...	187,900	150,500
Establishment of Special Reserve (Votes 3, 6, 7, etc.)	7,400	
Establishment of Central Flying School (Votes 1, 6, 7, etc.)	28,840	18,500
Civilian Subordinates (Votes 1 and 8) ...	3,200	—
Mechanical Transport Vehicles (Vote 6)	44,000	50,000
Miscellaneous Stores and Supplies (Votes 7, 8, and 9)	32,000	10,000
Land and Buildings (Vote 10)	201,000	91,000
Directorate of Military Aeronautics, War Office (Vote 12)	5,660	—
	1,047,000	554,000
Less Appropriations-in-Aid:—		
Contribution by Admiralty towards cost of Central Flying School (Vote 1)	34,000	25,000
Repayment Services and Miscellaneous Receipts (Vote 9)	13,000	9,000
Total Appropriations-in-Aid	£47,000	34,000
Net Total	£1,000,000	520,000

(To be continued.)

The Army Estimates.

The following is the text of the Memorandum introducing the Army Estimates for 1914-15 in so far as it relates to aircraft:—

The total of the Army Estimates for 1914-15, £28,845,000 shows an increase of £625,000 over that for 1913-14, the growth being almost exactly accounted for by two causes, namely, the new scheme of pay for regimental officers and of promotion from the ranks introduced on the 1st January last (£140,000) and the development of the Aviation Service (£480,000). The provision for this new service has now reached the figure of £1,000,000, and this fact has an important bearing on any comparison between the Army Estimates of to-day and those of former years.

Starting with the year 1905-06, the most important years, financially, of the succeeding series are 1907-08, in which a clear reduction of over £2,000,000 was made in the Estimates, and 1909-10, in which was reached the lowest figure of any year since the South African war and after which the growth of the Aviation charges may be said to have begun. The

Estimates for these years compare as follows with those now presented:—

Year.	Effective £	Non-Effective. £	Total. £
1905-06 ...	26,282,000	3,531,000	29,813,000
1907-08 ...	24,164,000	3,596,000	27,760,000
1909-10 ...	23,647,000	3,788,000	27,435,000
1914-15 ...	24,888,000	3,957,000	28,845,000

It will be seen that when allowance has been made for the automatic growth of pension charges and for the million now provided for aviation, the effective cost of the Army is actually less than in the year 1907-08; it is nearly 2½ millions less than it was in 1905-06, and is only a quarter of a million more than it was at its lowest point since the war.

The total establishment shows an increase of 800 men; of which half is accounted for by the growth of the Military Wing of the Royal Flying Corps.

Good progress has been made during the past year with the development of the Military Wing of the Royal Flying Corps. By the end of this month the personnel of the 5th

The AIRCRAFT COMPANY Ltd.

STAND NO. 41

Hold the sole rights direct from the
Farman Brothers for the building of

HENRY & MAURICE FARMAN

Aeroplanes and Hydro - Aeroplanes

In GREAT BRITAIN and the OVERSEA DOMINIONS

Works and Flying Grounds :
HENDON.

Offices : 47, Victoria Street,
WESTMINSTER, S.W.

THE GNOME ENGINE COMPANY.

(SOCIÉTÉ DES MOTEURS GNÔME.)

STAND NO. 31.

To whom all applications for Gnome
engines and spare parts should be made
for
Great Britain and the Oversea Dominions.

THE GNOME ENGINE COMPANY,
47, VICTORIA STREET, WESTMINSTER, S.W.

and 6th squadrons will be complete and the number of officer fliers will have grown to about 200, including officers in the Reserve, and those holding certificates but not yet admitted to the School. I am glad to be able to state that there has been comparative immunity from serious accident.

A decision was arrived at in the course of the autumn that for the future the lighter-than-air service for both Army and Navy should be concentrated under the administration of the Admiralty. In pursuance of this decision the Army airships and their appurtenances were handed over to the Navy on the 1st January last. The 1st squadron, formerly employed with airships and kites, is being replaced by an additional Aeroplane squadron, and by a Kite section which in the field will be attached to the Headquarters of the Flying Corps. During the coming year, the 7th and 8th squadrons will be completed in personnel and aeroplanes.

During the past year an Inspection Department for Aviation has been formed and is finding much scope for its activities in inspecting new supplies of all kinds, whether made by contractors or in the Aircraft Factory, and also in overhauling periodically the aeroplanes, engines, etc., of the Flying squadrons.

A special section of the Army Ordnance Department is also about to be formed to deal with the storage and supply of the highly technical and complicated matériel used in this branch of the service.

With large numbers of new aeroplanes on order at the present moment, and the constant liability of those in hand to become unfit for service, it is hardly possible to give any exact figure for the number of serviceable aeroplanes in possession of the Army which will not have ceased to be correct before it is printed; but, as a general indication of the progress made in the past year, it may be said that, as compared with 100 aeroplanes in existence on 20th March, 1913, there was on 25th February last 161 on hand, and between

those dates 87 had been struck off as unserviceable and replaced.

An adequate reserve of spare engines and considerable quantities of spare parts have been provided. In the present state of development of aeronautics, it is inadvisable to make such provision too far ahead, owing to the risk of parts becoming obsolete before they are taken into use.

The provision of motor transport is keeping pace with the formation of the squadrons.

A large amount of building for the Flying Corps has been carried out during the year. Barracks for two squadrons at Netheravon have been almost completed. At Farnborough the sheds for two squadrons are almost ready, and barracks for the rank and file will be fit for occupation in about three months. At Montrose the personnel is accommodated in existing barracks, and the necessary sheds and workshops will be finished by the end of the month. At the Central Flying School permanent quarters for the staff will be completed by the same date. Additions and improvements have also been made at the Royal Aircraft Factory.

Provision is now made to complete the barracks for six squadrons, to begin those for the seventh and eighth squadrons, to replace a large part of the temporary buildings at the Central Flying School by permanent buildings, and to take in hand the buildings for the Aircraft Park and Ordnance Depot.

The increase of £14,000 under the War Office Vote calls for notice. To the extent of nearly £6,000 it is due to automatic increases of pay under approved scales to military and civilian clerks of various grades. The rest is due to the establishing of certain new departments in the office. That of the Director-General of Military Aeronautics, a necessary consequence of the development of the new Air Service, costs £5,660.

The Royal Aero Club Committee.

The Annual General Meeting of the Members of the Royal Aero Club of the United Kingdom will be held on Tuesday, March 24th, 1914, at 4 o'clock, at 166, Piccadilly, London, W.

In accordance with the rules, the Committee shall consist of eighteen members. Members are elected to serve for two years, half the Committee retiring annually. Retiring members are eligible for re-election.

The retiring members of the committee are:—Col. J. E. Capper, C.B., R.E., G. B. Cockburn, Maj. J. D. B. Fulton, C.B., R.F.A., J. T. C. Moore-Brabazon, Com. C. R. Samson, R.N., A. Mortimer Singer, T. O. M. Sopwith, The Marquess of Tullibardine, M.V.O., D.S.O., M.P., Roger W. Wallace, K.C.

Col. J. E. Capper, C.B., R.E., and Mr. Roger W. Wallace, K.C., do not offer themselves for re-election.

The following members have so far been nominated:—Capt. R. K. Bagnall-Wild, R.E., G. B. Cockburn, Maj. J. D. B. Fulton, C.B., R.F.A., Maj. F. Lindsay Lloyd, Robert Loraine, Fred May, J. T. C. Moore-Brabazon, Norman Clark Neill, Com. C. R. Samson, R.N., Sir John Shelley, Bart., A. Mortimer Singer, T. O. M. Sopwith, The Marquess of Tullibardine, M.V.O., D.S.O., M.P.

Members are reminded that a ballot paper for the election of nine candidates to seats on the Committee of the Club will be forwarded to them at least seven days before the date of the Annual General Meeting.

Consequently, by March 17th, voting papers will be in the hands of the members. The writer earnestly hopes that every member of the club will take the trouble to send in his voting paper so as to ensure good men being elected.

As may be seen, thirteen candidates have already been nominated, and they indeed offer an *embarras de richesse*, for almost every one of them should be on the Committee. One only regrets that the other half of the Committee is not retiring as well, for there are several members thereon who could well be replaced by some of the new candidates who cannot possibly be elected. And, no doubt before March 11th, various others will have been nominated.

Taking those whose names appear above—Mr. Cockburn,

Major Fulton, Mr. Fred May, Commander Samson, Mr. Sopwith, and Lord Tullibardine should be given the votes of every member. The difficulty is to choose the other three, and leaving the choice open may mean a diffusion of votes which would result in the election of a less desirable candidate supported by a comparatively small clique of friends. Weighing all their qualifications one is inclined to advocate Major Lloyd, Mr. Neill, and Sir John Shelley—the last because he is keenly interested in dirigibles, whose interests are not at present represented on the Committee.

Mr. Wallace's Resignation from the R.Ae.C.

The Committee of the Royal Aero Club notifies that it has received with regret the resignation of Mr. R. W. Wallace, K.C., from membership of the Royal Aero Club. The Committee directed that a letter of appreciation for the long and valuable service rendered by Mr. Wallace in the formation and progress of the Club should be sent.

The editor of this paper desires to join in this expression of regret. He has on various occasions disagreed entirely with the opinions and methods of Mr. Wallace and of his friends on the Committee of the R.Ae.C., but he has fully recognised and appreciated the time and attention Mr. Wallace has given to the work of the Club, more especially abroad, where his position as King's Counsel gave him a position of eminence in the meetings of the International Federation.

One gathers that his resignation is largely due to ill luck befalling certain business undertakings with which he was connected, and one hopes that good fortune will soon return.

Marcel Desoutter's Benefit

On Thursday, March 19th, there will be a Benefit Meeting for M. Marcel Desoutter at Hendon. One hopes that every reader of THE AEROPLANE who can possibly attend will be sure to go to show his sympathy with the plucky and popular young aviator, who, despite his injuries, has already flown since his accident, and hopes to fly again. The *esprit de corps* which exists among aviators is shown by the fact that a large number of the best known British aviators have promised to fly on that day.

OLYMPIA — DO NOT MISS THE 200-H.P. SOPWITH BAT BOAT

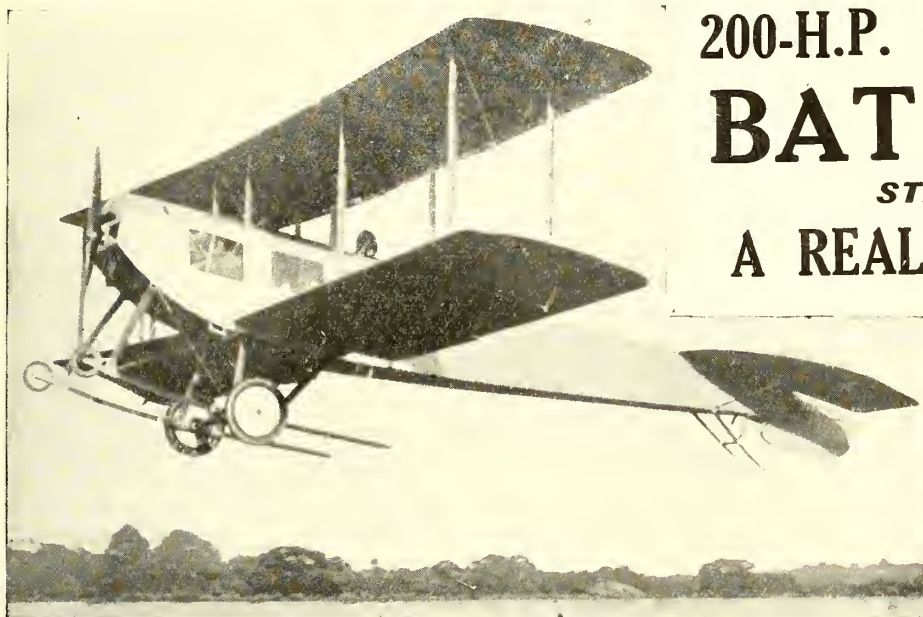
STAND 44.

**A REAL SEA - GOING
AIRCRAFT.**

EFFICIENCY

is the
Characteristic
of

**Sopwith
Aeroplanes.**



THE SOPWITH AVIATION CO.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

Telegrams :
"SOPWITH, KINGSTON."

An Invitation to the Beatty School of Flying

■ ■ ■ ■ ■ ■ ■ ■

It is impossible in the short space of an advertisement to explain fully the advantages of my system of training.

Intending pupils should write for full particulars or should visit the school.

When the training of my pupils is completed, they have not merely taken their certificates, they are trained pilots.

Tuition on Handley Page Monoplane & Wright Biplanes
£75.

Special terms to Naval and Military Officers.

(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette."—War Office, March 3rd.—Regular Forces. Royal Flying Corps. Military Wing.—Sec. Lieut. D. E. Stodart, Special Reserve, from the Reserve, to be a Flying Officer (February 5th).

NAVAL.

At Eastchurch on Monday, March 2nd, two naval Sopwiths and one Short (80-h.p. Gnômes) were flying, and on Tuesday two M. Farmans (80-h.p. De Dion and 70-h.p. Renault), a Short tractor (100-h.p. Gnome), an Avro (50-h.p. Gnome), a B.E., an H. Farman (80-h.p. Gnome), and a Sopwith (80-h.p. Gnome), were out. After dark Comdr. Samson, R.N., went out on Short No. 3 (80-h.p. Gnome) and was lost to sight (except for the Gnome exhaust) for some ten minutes, when he made a perfect landing without any assistance from flares. On Friday, in half a gale, Lieut. Seddon, R.N., flew over from Grain Island on a Short tractor (100-h.p. Gnome).

On Saturday morning a Maurice Farman, a Short, and a Sopwith (80-h.p. Gnome) were out. In the afternoon the same machines, a Henri Farman and an Avro (50-h.p. Gnome) were out. The latter, in charge of Leading-Artificer Bradford, caught the nose of its skid in a hummock when landing and turned over. The machine was wrecked, but the pilot, fortunately, escaped with a severe shaking. Later Comdr. Samson and Eng.-Lieut. Briggs, R.N., left for Eastbourne on the Blériot.

The storms of last week made flying impossible at Dundee, but Capt. Barnby took advantage of a lull on Thursday and made two flights on the Short of about 15 mins. each. Part of this squadron went to Leven at the end of the week to make preparations for the machines working from there in conjunction with some naval manoeuvres.

At Calshot, on Feb. 28th, an officer flew to Sheerness on the Naval Maurice Farman (70 Renault), and on Tuesday, March 3rd, No. 95 Maurice Farman (Sainson) and No. 118 were out. After her return the Sainson engine of No. 95 was found to be damaged. The Sopwith seaplane (100-h.p. Anzani) was also out for tests, Mr. Pixton piloting. This machine has now been fitted with a lifting tail.

It is rumoured that one of the naval airships is to be sent during the year to Somaliland, as has been suggested on various occasions. It is to be hoped that the rumour is soundly based, as undoubtedly Mullah-hunting will provide excellent training.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending February 27, 1914:—

Flying Depot, Farnborough.—Experimental and repair work were continued and assistance given to the inspection branch.

No. 2 Squadron, Montrose.—The officer and N.C.O. pilots were busy flying throughout the week. Many reconnaissance flights were made.

No. 3 Squadron, Netheravon.—Flying was interfered with on several days owing to fog. Some range-finding experiments were carried out during the week.

No. 4 Squadron, Netheravon.—The officer-pilots of the squadron made some long reconnaissance flights, and experimental work with lights was continued.

No. 5 Squadron, Farnborough.—The officer-pilots of the squadron carried out several cross-country reconnaissances. Experiments in landing after dark by means of a searchlight were made.

No. 6 Squadron, Farnborough.—The week was devoted to testing machines newly handed over to the squadron. Some long reconnaissance flights were made.

War Office, March 3rd, 1914.

A spell of hard March weather prevented much flying from being done at the Montrose Aerodrome during the past week. Only during the forenoons of Wednesday and Thursday was it favourable, and the officers took advantage of them. Lieuts. Lawrence and Harvey-Kelly were out in B.E.s 226 and 232, while the Maurice Farman was doing school work at Dysart. Broomfield is now clear of canvas hangars, but only two of the permanent sheds are workable. The ground is still in

fearful mess of whin bushes and uprooted trees, and it would require a company of sappers to make it ready by summer. The men of No. 2 Squadron are doing their best at clearance, and a few town labourers are slowly clearing away bushes.

NEW ZEALAND.

Mr. Hammond, on the New Zealand Government's Blériot monoplane, presented by the Imperial Airfleet Committee, made a flight of an hour over Auckland City during January.

FRANCE.

Messrs. Farman Frères have on order for the six months of 1914 more than 80 aeroplanes, and in addition have 40 old machines to renovate for the French army.

The airship "Adjudant-Vincenot" left Issy-les-Moulineaux on Tuesday, March 3rd, for Toul with six passengers, and passing over Vitry-le-François, dropped a message addressed to the military authorities there.

Lieut. Gaubert, of the French army, has looped the loop on a 50-h.p. Blériot. He is the first French officer aviator to perform this feat.

Lieut. Personne flew from Chalons to Dijon with his mechanic, Poret, on Monday, March 2nd, and returned to Chalons carrying a friend as passenger on Tuesday 3rd.

Lieut. Dessirier, of the Pau aviation centre, dived to the ground from 50 metres (160 ft.) on Wednesday, March 4th, smashing his machine with some completeness, but escaping himself with a broken left leg.

The Blériot escadrille at Morocco continues to do good work. Last week Lieut. de la Morlaye, with Quartermaster Feierstein, flew from Casablanca to Fez and back, a distance of 600 kms., without incident. Quartermasters Feierstein and Peretti are to be promoted to the rank of adjudant in recognition of their services.

GERMANY.

The new Schütte-Lanz airship made its first trials on February 28th with a military commission on board, landing after a satisfactory journey of one and a half hours. The vessel, to be listed as S.-L. II, is slimmer in shape than the earlier models and has adopted the practical grey of the Zeppelins, instead of a pea-colour. It has five gondolas.—B.

Experiments are being made at Heligoland with disappearing aeroplane sheds, which sink into the ground by means of hydraulic apparatus. One takes it that a dummy church on top might complete the outfit.

RUSSIA.

Five Sikorsky hydro-biplanes are on order for the Russian navy. They are of the standard type, but fitted with floats.

Another shipment of Curtiss flying-boats and Curtiss motors started for Russia last week. The half-dozen flying-boats and twelve O-X motors when packed for foreign shipment filled three large box-cars and represented a reasonable fortune.

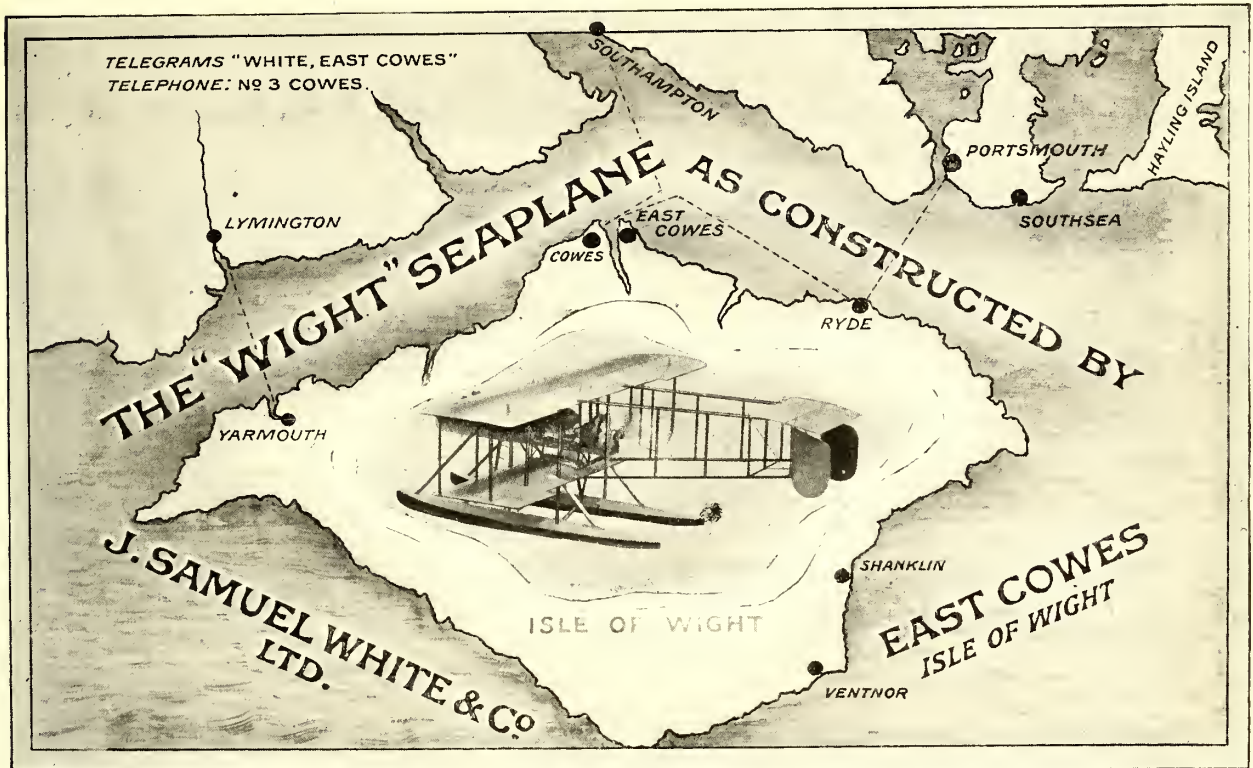
AUSTRIA.

Mr. Cooper was engaged on February 16th in testing a new type Curtiss boat at Trieste for the Austrian navy.

ITALY.

The Trasimene Lake, by war correspondents for years neglected, recently became the home of a flight of Farman waterplanes, so is returning to its own again. The departure for more tranquil districts of the waterfowl was accelerated by some "shoots," in which M. Fischer and an Italian officer-aviator on a biplane obtained the usual big bag. The sheet of water should be almost ideal for training work. It was not quite unknown in the past in connection with rapid locomotive systems, if I am not wrong. A well-known English sportsman had some experience of the lake a while back.

Work has been taken up again at the military schools, which, by the by, I propose calling in future training camps, now that theoretical schools and aerodromes distinct from training camps exist actively. At the Aviano training camp a relay of 30 N.C.O.'s have arrived to begin their practical course. Both at Venariat camp and at Mirafiori aerodrome there was a lot of good work done during the first week of March. Flights between the former and Vizzola training camp seem to be an



STAND 67 OLYMPIA.

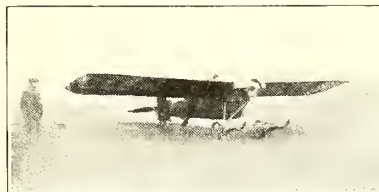
STAND 67 OLYMPIA.

CLÉMENT-BAYARD.

AEROPLANES, SEAPLANES, and AIRSHIPS.
MOTORS FOR ALL TYPES OF AIRCRAFT.

Specialists in all-steel construction of Aeroplanes & Seaplanes.

**Single - Seater
Armoured Scouting
Monoplane.**



**Weight 375 Kilos.
100 h.p. Gnome Motor.
Speed 125 Kil. per hour.**

As Supplied to the French Army.

Works: QUAI MICHELET,
LEVALLOIS, PARIS.

British Representatives :
DELACOMBE & MARÉCHAL,
166 PICCADILLY, W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

attraction to the officers at both places. At Mirafiori, Sergeant Brack-Papa was up on an 80-h.p. De Dion-Farman trying to beat his own record set up at the end of February (3,950 metres), but was unsuccessful. So thus the Italian height record stands.

P. 4 is still at Rome officially waiting to assist M. 2 to give a trip to thirty M.P.'s before going back to Venice.—T. S. H.

From Italy, Mr. G. F. Campbell-Wood cabled a report to the Curtiss works on the successful acceptance flights of the first of the new fleet of Curtiss machines destined for that country. All of the tests for speed, weight-carrying, climbing, seaworthiness, etc., were passed easily, and the machine turned over to the Admiralty.

SWITZERLAND.

Tests are to be made at Berne towards the end of this month to decide what machines shall be purchased for the Swiss flying corps.

TURKEY.

Baron D'Orcy has cabled from Constantinople to the Curtiss firm that he has made an arrangement with the Turkish navy for the early demonstration of Curtiss flying-boats for that country.

ALBANIA.

Albania does not intend to be behind the other Balkan countries in aviation, now that it has a king of its own. Essad Pasha has been in communication with Herr Schnitzer, of Vienna, the result being the purchase of three aeroplanes of German and Austrian manufacture for Durazzo. The pilots are to remain in Albania for three or four months to give lessons to a number of aboriginal military and civilian aviators. —B.

U. S. A.

Lieut. John H. Towers, of the U.S. Navy, a prospective entrant for the Wanamaker-Curtiss trans-Atlantic flight, has gone north from the navy's aviation camp at Pensacola to discuss with Messrs. Wanamaker and Curtiss plans for the prospective flight. If arrangements prove satisfactory to him he will then apply to the Secretary of the Navy for permission to participate. In case he should prove unavailable, there are at least a dozen others who are anxious to be nominated

for the task. Among these is John Lansing Callan, of Albany, an operator of Curtiss machines who is now stationed at Pensacola to observe the naval experiments on behalf of the Curtiss Company. Mr. Callan flew nearly 12,000 miles last summer, frequently making 500 miles a day for several consecutive days, landing and changing passengers every ten miles.

A Special Inquiry Board sat at Washington D.C. on February 20th to investigate the cause of the fatal accident to Lieut. H. B. Post on a Wright biplane. In the opinion of the Board the catastrophe was due to structural collapse. Evidence showed that the deceased officer descended normally from 10,000 ft. to 1,800 ft., and then the dive commenced to become steeper and steeper until it reached the vertical. The machine fell into the sea.

On February 14th, Lieut. T. F. Dodd and Sergt. Herbert Marcus, of the U.S. army flying corps, flew from North Island to Los Angeles and back non-stop, a distance of 246 miles, in 272 mins., a record cross-country flight for America. The make of machine is not stated, but it appears to have been a tractor biplane, presumably a Curtiss.

CHINA.

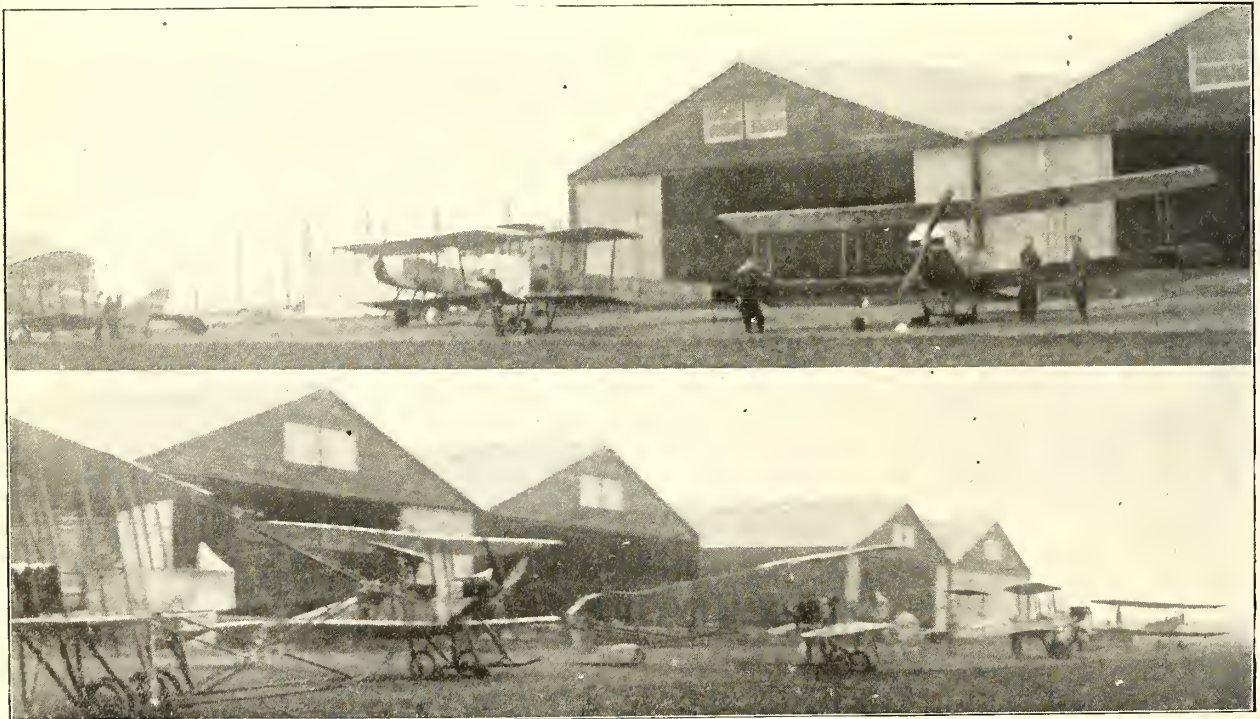
It is rumoured that Chinese military aeroplanes played an important part in the location and dispersal of the "White Wolf" brigands on the Honan and Anhui border. China owns several Caudron biplanes.

Foreign Notes.

France.

M. Bonnier and his mechanic safely reached Issy-les-Moulineaux on Tuesday of last week, after their many adventures in the East. He received a great ovation from the Nieuport firm. M. Bonnier's modesty and ability have won him many friends in this country, and on their behalf THE AEROPLANE offers felicitations on his safe return. One hopes to see him in England ere long.

M. Maurice Farman continues his "tourisme aérienne." He left Buc on Wednesday, March 4th, with Mlle. Farman and M. Senouque as passengers, for Chambord, whence he returned after lunch, passing by way of Etampes.



AT THE CENTRAL FLYING SCHOOL:—Above, Avros and B.E.s of "A" flight. Below, Maurice Farmans and B.E.s of "C" flight.

CONTRACTORS TO THE ADMIRALTY

**SHORT BROTHERS,
AEROPLANE WORKS
AND
FLYING GROUNDS—
EASTCHURCH, ISLE OF SHEPPEY.**

Telephone :—9. MINSTER-ON-SEA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

**SEE
STAND No. 64**

AVRO

*WE are showing three machines at
the Aero Exhibition :*

1914 Two-Seater, 504 Type, shown as a Seaplane.

1914 Single-Seater, 511 Type.

1914 Two-Seater Gun-Carrying Seaplane, 508 Type.

An expert examination will convince you that there is

NOTHING BETTER.

The machines with the greatest utility.

A. V. ROE & Co., Ltd.,

CONTRACTORS TO ADMIRALTY, WAR OFFICE, & FOREIGN GOVTS.

CLIFTON ST., MILES PLATTING, MANCHESTER.

AVRO

**SEE
STAND No. 64.**

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

According to our French contemporary, "L'Aero," M. Gilbert has invented a new form of trick-flying which consists in dropping his tail so low, with the motor running, that the machine stops climbing and merely hangs in the air. To extricate himself from this position he puts his rudder hard over, sideslips, and picks up on the ensuing dive.

The following are the entries for the Monaco Rallye. The list definitely closes on March 15th:—(1) Aviatik, 150-h.p. Mercédès; pilot, Ingold; (2) Aviatik, 130-h.p. Salmson; pilot, Gaubert; (3) Bréguet, 130-h.p. Salmson; pilot, Moineau; (4) Deperdussin, motor X...; pilot, Prévost; (5) Deperdussin, motor X...; pilot, Rost; (6) Deperdussin, motor X..., pilot X...; (7) Gotha, motor X...; pilot X...; (8) Henri Farman, 80-h.p. Gnome; pilot, Verrier; (9) Henri Farman, 80-h.p. Gnome; pilot, X...; (10) Maurice Farman, Renault; pilot, Renaux; (11) Maurice Farman, 130-h.p. Salmson; pilot, Gaubert; (12) Morane-Saulnier, 80-h.p. Gnome, pilot, Garros; (13) Morane-Saulnier, 80-h.p. Gnome; pilot, Audemars; (14) Morane-Saulnier, 80-h.p. Gnome; pilot, Bider; (15) Morane-Saulnier, 100-h.p. Le Rhone; pilot, Gilbert; (16) Morane-Saulnier, 80-h.p. Gnome; pilot, Lord Carbery; (17) Nieuport, Gnome; pilot, X...; (18) Nieuport, Clérgé; pilot, X...; (19) Nieuport, Le Rhone; pilot, X...; (20) R.E.P., 130-h.p. Salmson; pilot, Molla; (21) Schemmel, 100-h.p. Gnome; pilot, Schemmel. Lord Carbery and M. Gilbert will start on the London itinerary.

Germany.

A 9-hour non-stop flight was made by Herr Krumsiek on a Gotha-Hansa Dove on March 3rd. Starting at Hamburg-Fuhlsbüttel, he flew to Stargard, near Danzig, where his petrol gave out. Originally he intended to fly to Colberg, Stettin, Johannisthal, and back to Hamburg, but owing to a dense fog and a defective compass he lost his way and found himself near the Oder River, whose course he then followed.

The death is announced at Düsseldorf, on February 27th, of Herr Paul Veeh, who constructed a semi-rigid airship in 1910 without success. His second attempt was the steel cruiser that for a time caused no little sensation, as it incorporated many good qualities, and it was believed the War Ministry would purchase it. Money, however, ran short, work had to be discontinued, and as sufficient assistance was not procurable, the Veeh airship had to be completely dismantled. Herr Veeh, who was only 50 years of age, did not long survive the débâcle.

The Aviatik A.G. has entered Herr Ernst Stoeffler for the Monaco "rallye." He will start from Gotha on an Aviatik biplane of the same type as his brother Viktor and Herr Ingold used for their duration records. The machine will be fitted with a new Benz 6-cylinder motor of 150 h.p. The French aviator Gaubert will also fly an Aviatik biplane, probably with a French engine. In both machines the landing-wheels will be detached and floats fitted for the Marseilles-Monaco stage.

Twenty-four machines have been entered by German factories for the Prince Henry Circuit, besides the military entrants. Can anyone see twenty-four all-British entrants for any competition?

Herr Helmuth Hirth, who recently received the Frederick Order from the King of Württemberg for his services to aviation, has severed his connection with the Albatros works at Johannisthal, where he was technical director, and will compete during the coming season as a private owner. He has purchased three Albatros biplanes. It will be interesting to see what Hirth, formerly a past-master in the operating of racing "Doves," will accomplish on a biplane.—B.

Italy.

Looping and its consequences is subtly invading the whole land. Chevillard roused delirium at Rome before their Majesties on February 28th, and Italian and French flying men are booked to perform here, there, and everywhere. Dal Mistro's ex-Pégoud Blériot being sequestered for the legal inquiries, his engagements will presumably fall through. Genova was to see Hanouille on the 8th inst., and De Dominicis on his Vendome specially reconstructed is to be the draw at Mirafiori on the 15th in aid of hospital work.

Cevasco, on the L.U.C.T. Gabardini waterplane, is stealthily

training over Lake Maggiore for a big flight in which a high altitude would appear essential. Hence surmise brings in the Alps. He, however, normally flies high, so that surmising is quite useless.

I have it on rather good authority that the Genova-Tripoli and back waterplane contest is much less settled than the papers assert. It is, as usual, felt strongly that prize-money should be reserved for the Italian industry. It is certainly not the time in the present state of trade to distribute bounties to foreign firms. A sporting event would result if the naval pilots were allowed to enter for the glory and those few civilians encouraged by a handsome prize fund.—T. S. HARVEY.

M. Chevillard has recently made a series of exhibition flights at Rome before the King and Queen of Italy, and gave his usual exposition of flying in every way but the usual one.

Spain.

Señor di Pombo Hibarra, a rich Spanish sportsman, seems to be taking aviation seriously. A few days after taking his certificate he flew with a passenger from Santander to Madrid on his 80-h.p. Blériot. Last Wednesday he put the Spanish altitude record up to 3,000 metres (9,800 feet), carrying his mechanic as passenger. He proposes to make a grand tour of Spain.

Switzerland.

The Swiss Aero Club intends to be represented in the Schneider Cup race. They will probably purchase an F.B.A. flying-boat. If they should happen to win, of course next year's race would be flown over the "lake of the four cantons"!

M. Burri is giving demonstrations on an F.B.A. flying-boat (80-h.p. Gnome) at Neuchâtel.

Egypt.

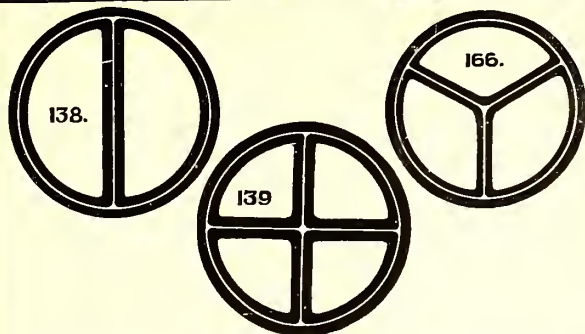
M. Guillaux intended embarking on March 5th at Port Said for Sydney, N.S.W.

U. S. A.

Editorial discussion of the Wanamaker-Curtiss trans-Atlantic project in papers from New York to San Francisco has been reassuring to those who feel that the American Press has treated aviation cavalierly. With very few exceptions—notably the Boston "Transcript," whose aviation editor cannot conceive of anything practical in aviation developing west of Marblehead—editorial writers have been at some pains to base their opinions on the facts and figures given out for publication. They have considered that the proposal has the backing of Mr. Rodman Wanamaker and Mr. Glenn H. Curtiss, the endorsement of the board of governors of the Aero Club of America, and the implied endorsement, at least, of the Smithsonian Institution. The result has been the almost unanimous approval of the project outlined.

The few exceptions recorded seem to be based on false premises. Some assume that the distance to be flown is from 2,500 to 3,000 miles—instead of some 1,640. Or, that no reliance can be placed on any compass, despite the assurance of Garros and other distance fliers that they found the reverse to be the case. Or, that in other duration flights (around closed circuits) the average speeds have not exceeded 60 miles per hour, although it has been stated repeatedly that the flight will be attempted only with a strong following wind, backed by expert assurances that the direction and duration of this wind can be depended upon. As to the motor, the average runs of Curtiss O-X 100-h.p. motors during the past year have been 3,500 to 4,000 miles without overhauling. In one case a motor with a record of more than 10,000 miles of actual flight was, after overhauling, run for 40 hours under load at flying speed without an adjustment and without missing an explosion. Twelve years of continuous experience in building light motors is behind the Curtiss proposition.

Mr. Raymund V. Morris, who has been flying at St. Petersburg, Fla., with the little monoplane flying-boat recently turned out for him by G. H. Curtiss, is so well pleased with its performance that he intends to fly it in the 150-mile oversea race for the Schneider Cup. Undoubtedly the fastest machine in America with its present motor of 100 h.p., it is intended to replace this with one of 160 h.p. for the French competition.



We have made application for a British Patent to protect the manufacture of tubing as illustrated above, and made up with one, two, three, four or more liners.

HAVING HAD TROUBLE, you naturally want something on which you may rely—and that is No. 138.

VIBRATORY TESTS carried out with plain gauge tubing of equal weight and with No. 138 go to show every time the vast superiority of the latter, which has five, six, seven and more times the "life."

Under no circumstances have the liners been broken or fractured in addition to the outer shell.

WEIGHT FOR WEIGHT, it is the strongest and "liveliest" tubing designed or produced.

THE LINERS may be of half-round or special sections of solid drawn steel tubing, or formed of rolled Swedish

"APOLLO"

**THE FIRST FOR
STRENGTH and SYMMETRY.**

No. 166 is said to be **33%** stronger than ordinary tubing.

No. 138 is weight for weight, **STRONGER STILL.**

No. 139 is for use where weight is no object and exceptional strength is necessary.

steel strip, and the outer casing is drawn tightly over the combined section.

TRY THIS TUBING for yourself in a motor-cycle frame, by replacing the tube that has let you down in the past, or have it built into your next "test" machine. This may be done at our expense by arrangement.

TRY IT ALSO in a motor-car handle-bar stem and feel safe.

LET US HAVE YOUR SPECIFICATION showing your usual gauges, diameters, lengths, and quantities. We would like to quote you for anything tubular, up to and including plated work, in a quality that cannot be beaten.



**OLDBURY,
BIRMINGHAM**

OLYMPIA, MARCH 16th to 25th, 1914.

THE INTEGRAL PROPELLER COMPANY, LTD.

(L. CHAUVIÈRE)

Invite your inspection at **STAND No. 21** Of their world-renowned

INTEGRAL PROPELLER.



HOLDS THE WORLD'S RECORDS FOR

SPEED, HEIGHT, DISTANCE AND DURATION

We are also exhibiting Chauvière's

VARIABLE PITCH PROPELLER FOR DIRIGIBLES

Standard metal bosses fitted with our quick-expelling nut, combining labour-saving with guaranteed safety.

THE INTEGRAL PROPELLER CO., LTD.

307, Euston Road, N.W.

Telegrams: "Aviprop (Eusroad), London."

WORKS: 1b, ELTHORNE ROAD,

Upper Holloway, N.

Telephone: North 912.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Some Points about F.E.2.

The accompanying illustrations of the R.A.F. biplane known as F.E.2 will doubtless interest those concerned with the design of aeroplanes and with the safety of those who fly. The enormously high flat sides of the nacelle (or body) should be noted. It will also be seen that the tail, though nearer the camera than the body, and, therefore, appearing in exaggerated size, is disproportionately small to the rest of the side area (see page 276).

Discussing this machine recently with one concerned, I was told that the Wittering accident was caused because "the pilot left his centre of gravity behind when he went up," the speaker meaning that owing to the removal of the machine-gun and its ammunition, and the neglect to replace it with ballast, the centre of gravity of the whole machine was too far back, and so caused the smash. It is possibly true that this was a contributory cause, but no machine should be allowed to exist which could possibly become dangerous under such circumstances. Further, it appears certain that with the gun on board, or with corresponding ballast the machine would not have flown at all, which would, perhaps, have been a good thing. I base this last statement on the fact that she was barely able to fly when she left Shoreham.

Further, I am informed that when she reached Eastbourne from Folkestone the pilot refused to take her on to Shoreham, though there was very little wind at the time, because several times between Folkestone and Shoreham she had got absolutely out of control. In fact, so badly did she behave that the late Mr. Haynes, who was passenger, became seriously ill, and went to bed shortly after his arrival at Eastbourne. The pilot, Mr. Wingfield-Smith, a very skilful flier, still accompanied by Mr. Haynes, took the machine on to Shoreham when it was calmer, and apparently had an equally bad journey to Shoreham. Officers of the Royal Flying Corps, and others interested in Service aviation would doubtless like to know who was responsible for the machine being flown in such a state.

Was the pilot ordered to fly her? If so, who gave the order? If there was no direct order, why did Mr. Smith continue to fly, especially with a passenger, when it was evident that a machine which was unsafe would be useless for experimental work at Wittering? Was the machine flown to Wittering by order of any official of the Royal Aircraft Factory, and, if

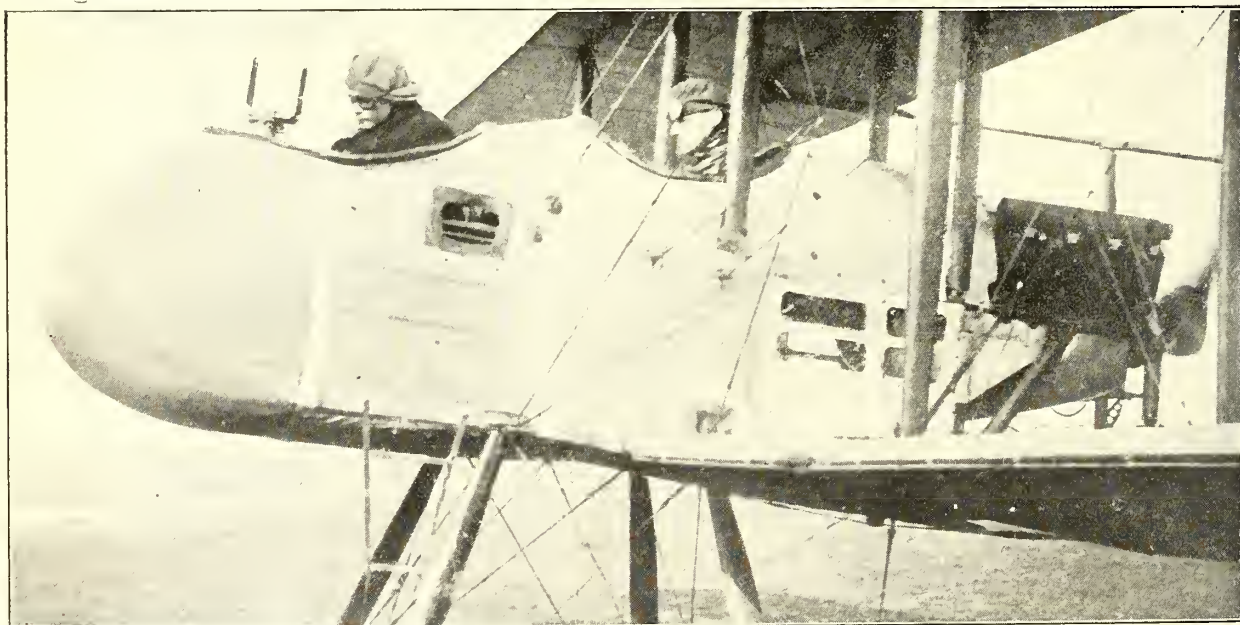
so, why did not the pilot—not being under military discipline—refuse to proceed till the machine was fit to fly? Why did Mr. Kemp take the machine over if Mr. Smith reported her as unsafe? Were any alterations made in the machine between the last time she was flown by Mr. Smith and when she was flown by Mr. Kemp? These are a few of the points which should be made public by the Accidents Investigation Committee of the Royal Aero Club.

Now, as to design. If with a gun and ammunition, or with equal weight of ballast, the centre of gravity of the F.E.2 was sufficiently far forward to be correct in relation to the centre of side-pressure, then it must have been far in front of the centre of pressure (or lift) of the wings, consequently, the tail must have acted as a powerful depressor to maintain longitudinal balance. It is, I believe, acknowledged, that a depressing (or negative angle) tail is dangerous, because in a spiral dive it tends to throw the tail continually outwards, and so decrease the radius of the turn, thus making the spiral closer and closer, and more and more difficult to correct.

It will be noticed that the nacelle is cut away under the engine, thus still further decreasing the side area which might have been there behind the centre of gravity. It will be noticed also that the rudder is not "balanced" on the rudder post, but is simply a hinged flap—thus further decreasing possible side area aft.

Though the F.E.2 is in the same type as the Henri Farman machines the difference is that the Farman has much lower sides to the nacelle, which, also, is carried back close to the engine, the engine itself is lighter in proportion, so that the weights are more closely massed, and the whole machine is lighter, and, therefore, is under better control, the rudder is balanced and is larger in proportion than in the F.E.2, and yet the Farman only just escapes being spirally unstable, as any pilot will tell you who has tried to turn without banking.

The enormous tail of the F.E.2, presumably intended as a depressor, prevented the elevator control from acting quickly. I gather also that the tail bracing was anchored to clips on the tail booms, instead of the actual junctions of the upright struts with the booms, so that the strain on the wires tended to bend the booms, and actually did so—in fact, one set of tail-booms had actually broken, or, at any rate, had had to be replaced.



The late Mr. E. T. Haynes (front) and Mr. Wingfield-Smith on F.E.2. Note the enormous projecting nacelle.

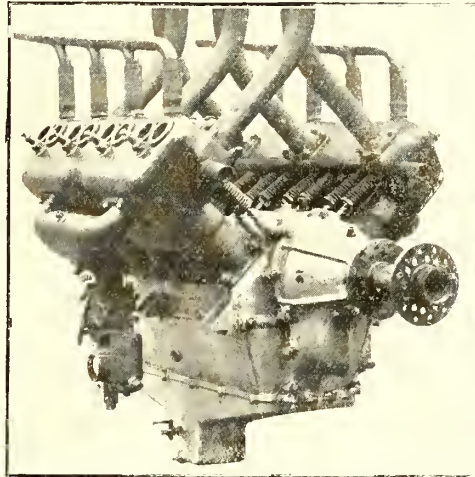
SUNBEAM

AVIATION ENGINES

8 CYL.
150 h.p.

(Illustrated)

As purchased by the
WAR OFFICE for the
Royal Aircraft Factory
after severe tests ex-
tending over several
months.



12 CYL.
225 h.p.

The same excellence
of design, material and
workmanship which has
made the Sunbeam motor
supreme on land is em-
bodied in the aviation
engine.

Cross Country Flights arranged on moderate terms. Apply

THE SUNBEAM MOTOR CAR Co., Ltd., Upper Villiers St., Wolverhampton.



M. Pegoud.

MEN WHO "LOOP,"

fly upside down, and display their skill in
daring evolutions take no risks regarding
motor spirit. It is significant, therefore, that in
hissensational flights at Brooklands M. Pegoud
used "Shell." Mr. Hamel, the first aviator
to "loop-the-loop" with passenger, also uses



Mr Hamel.

'SHELL'

By Royal  Appointment.



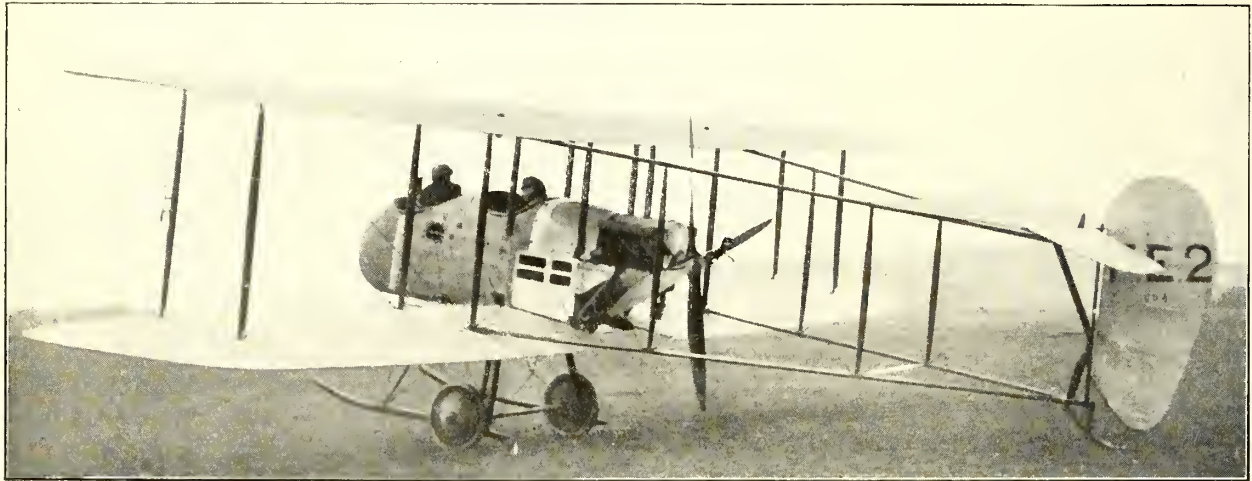
KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The great space between the outer pair of main plane struts and the next will be noted. I am told that by applying downward pressure to the front of the wing-tip outside of these struts the whole main spar could be bent, so that when flying the spar must have been constantly out of truth, and the angle of incidence of the wing must have been altering continually as the air pressure varied with gusts. A flexible trailing edge seems a good thing, but one does not imagine a flexible leading edge to be conducive to efficiency.

The actual construction of these wings is unknown to me, but I do know that in the ordinary B.E. wings the R.A.F. designs insist on each rib—a strip of thin wood about $\frac{1}{8}$ inch wide—being fastened to each spar by a brass screw in the middle and a brad on each side of it, all in a row, so that half the strength of the rib is knocked out of it just where it is most needed. Also, in some B.E. wings there are no com-

pression members between the front and rear spars, so that the internal drift-wires pull directly against these partially destroyed ribs. One can thus easily comprehend why wings built on such a principle become "sloppy" and refuse to lift—and F.E.2 had wings of B.E. design.

All these points should be thoroughly thrashed out by the R.Ae.C. Accidents Committee, and the responsibility for Mr. Haynes' death should be fixed without fear or favour. This Committee has been admirably fair, outspoken, and impartial when dealing with fatalities on machines built by "The Trade," and one hopes that it will not allow itself to be muzzled by official influences. There was nothing secret about F.E.2, except the badness of her design and construction, so let us hope the "official secrets" excuse will not prevent publication of the facts. If the design of the machine was to blame, let us know the truth.—C. G. G.



The F.E.2 taken just before the Wittering accident. Note the cutting away of the nacelle under the engine.

The Royal Aero Club.

The International Aero, Motor Boat, Marine and Stationary Engine Exhibition, organised by the Society of Motor Manufacturers and Traders, supported by the Royal Aero Club, will be held at Olympia from Monday, March 16th, to Wednesday, March 25th, 1914.

Members of the Royal Aero Club are admitted free on presentation of their membership cards.

A room in the Princes Gallery will be placed at the disposal of the Members during the Exhibition.

An invitation has been extended by the Royal Aero Club to the Non-Commissioned Officers and Men attached to the Naval and Military Wings of the Royal Flying Corps to visit the Exhibition. During the visit the men will be entertained to luncheon by the Royal Aero Club.

At the Committee meeting on March 3rd the following aviators' certificates were granted:—738, John Percival Clark (Grahame-White biplane, Grahame-White School, Hendon), Feb. 16th, 1914; 739, Sub-Lieut. Hans Acworth Busk, R.N.R. (Maurice Farman biplane, Central Flying School, Upavon), Feb. 17th, 1914; 740, Lieut. Charles Edward Robinson, R.M.L.I. (Maurice Farman biplane, Central Flying School, Upavon), Feb. 19th, 1914; 741, Lieut. Harry Macleod Fraser, R.N. (Bristol biplane, Bristol School, Brooklands), Feb. 25th, 1914; 742, William John Stutt (Bristol biplane, Bristol School, Salisbury Plain), Feb. 25th, 1914; 743, Capt. Alexander Ross-Hume (Vickers biplane, Vickers School, Brooklands), Feb. 25th, 1914; 744, 2nd Lieut. James Lee Jackson (Vickers biplane, Vickers School, Brooklands), Feb. 26th, 1914; 745, Sub-Lieut. John Charles Spencer-Warwick, R.N.V.R. (Vickers biplane, Vickers School, Brooklands), Feb. 26th, 1914. The following certificate was passed in France:—Thomas Elder Hearn (Blériot monoplane, Blériot School, Buc), Feb. 10th, 1914.

The Death of Captain C. P. Downer.

It is with great regret one notifies the death at Upavon in the early morning of Tuesday, March 10th, of Captain Cyril Percy Downer, of the Northamptonshire Regiment, who was killed while flying a "Mark B.E.2" biplane. At the moment of going to press particulars of the accident are not available. The late Captain Downer took his certificate, No. 608, at the Vickers School on August 29th, 1913. He was born on October 15th, 1877, at Leeds.

The British Altitude Record.

The report of the National Physical Laboratory on the barograph used by Capt. J. M. Salmond, R.F.C., in his flight on December 13th, 1913, at Upavon, has now been received by the Royal Aero Club. The Committee, at its meeting on Tuesday, March 3rd, granted the British Altitude Record for pilot alone to Capt. J. M. Salmond, R.F.C., the height accomplished being 13,140 feet. The aeroplane in which the flight was made was a B.E. biplane fitted with a 70-h.p. Renault.

The British Height Records now stand as follows:—

Pilot Alone, Capt. J. M. Salmond, R.F.C. (B.E. biplane), 13,140 ft.

Pilot and One Passenger, Mr. H. G. Hawker (Sopwith biplane), 12,900 ft.

Pilot and Two Passengers, Mr. H. G. Hawker (Sopwith biplane), 10,600 ft.

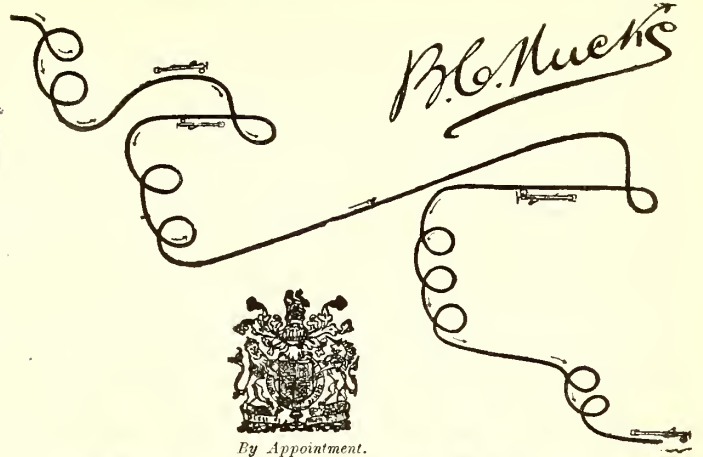
Pilot and Three Passengers, Mr. H. G. Hawker (Sopwith biplane), 8,400 ft.

Mr. F. P. Raynham, on the Avro biplane, has recently made attempts on these records, and the barographs are now being tested.

PROOF:

At a public demonstration at Oxford on February 28th, Mr. B. C. Hucks completed his 200th loop. In all his flights Mr. Hucks has used PRATT'S Perfection Motor Spirit, solely on account of its 100% Purity, which means absence of engine trouble, and on which depends the primary essential

RELIABILITY

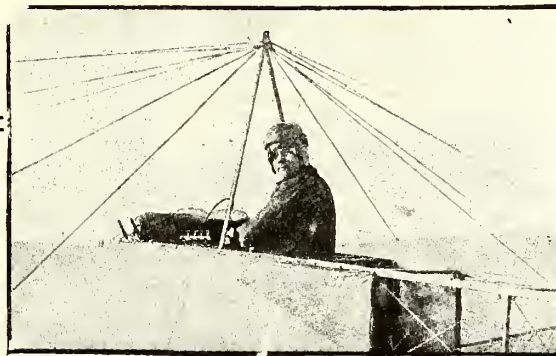


PRATT'S

Perfection

Motor Spirit

AERO AND MARINE
EXHIBITION, OLYMPIA
MARCH 16th to 25th



FOR EVERYTHING
BUT THE AEROPLANE
SEE STAND NO. 45

Dunhills

AVORITIES

- ☞ At Stand No. 45 we are showing a representative selection of our well-known aeroplane accessories.
- ☞ The latest and best features in aviation equipment are to be seen at this Stand—accessories of all kinds, besides a good range of clothing items.
- ☞ Take a note of the Stand number, for you are certain to be interested in our exhibits.

A card will bring you our Aviation Catalogue.

**2, CONDUIT STREET, W.
359-361, EUSTON RD., N.W.**

City Branch: 42-43, Lombard St., E.C.

MANCHESTER: 88, CROSS ST.

GLASGOW: 72, St. VINCENT ST.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Royal Aero Club Dinner.

The contrast between the Royal Aero Club dinner of this year and last is one of the most remarkable things in the history of aviation. Last year's was an interesting but somewhat solemn function, relieved by an excellent entertainment by professional artists afterwards. This year there was no entertainment, but from first to last the whole performance was thoroughly enjoyable, everyone seemed pleased with themselves, and the speeches were as good an entertainment as anyone could wish. Last year the guest of the evening was the Secretary of State for War, and though his duplicity, or incompetence, which you will, had not then been fully exposed, his reception was chilly and his futile rhetoric was taken for just what it was worth. This year the First Lord of the Admiralty was welcomed with an enthusiasm which threatened serious damage to the property of the Savoy Hotel, and his speech, in turn humorous and full of serious import, but all too short, rang true from start to finish, producing rounds of applause which showed how Mr. Churchill's public actions and his personal courage have won to his side even those who are his political opponents.

But perhaps the greatest difference of all was shown in the fact that last year there were practically no naval officers present, and only a few soldiers whose official position made it necessary for them to be there, whereas this year I counted something like thirty-five soldiers and very nearly as many sailors, one whole table being reserved for officers of the Naval Air Service and another for the Royal Flying Corps, Military Wing, a direct and notable compliment to Mr. Churchill. Over thirty of these were actual naval and military pilots, and there were besides about forty-five civilian pilots, making altogether the largest assemblage of fliers ever collected under one roof in this country.

It is well to refrain from giving a list of those present, for the change of date prevented a good many people from arriving and their places were taken at the last moment by others, so that the list published by some papers, and obviously taken from the table plans, is fairly inaccurate, though a personal knowledge of the Air Service might have prevented some rather glaring errors. However, the most important were there, and Lord Tullibardine, whose commanding presence, clearness of diction, and ready wit make him an ideal chairman, presided over quite the most distinguished crowd ever gathered together in the name of aviation in this country. Incidentally, the new chairman of the Royal Aero Club strikes one as being among the very few members of Parliament to whom the epithet "the honourable and gallant member" can be applied accurately and literally.

After the Chairman had proposed the toast of the King, and of the Queen and the rest of the Royal Family, as it should be done, minus the fulsome eulogy with which these toasts are so often insulted—one hates to hear a self-made motor-monger telling his friends at length of the surprising virtues of their Majesties—the speechifying began.

Colonel Holden, vice-chairman of the Club, who was commendably brief in proposing the toast of the Royal Aero Club, told us how prosperous the Club was, though he hoped for still more members. The matter of new premises was also mentioned, and Colonel Holden deprecated the idea that they should be bigger than those of the Royal Automobile Club. He stated that 364 aviators' certificates had been granted by the Club in 1913, and expressed his belief that flying was much safer than people thought—a statement which was greeted with loud cheers—after which he added that he thought that flying was almost as safe as travelling in a train—and here one must, of course, entirely disagree with him. He spoke of the Aviators' Benevolent Fund, and hoped it would be well supported.

He referred gracefully to the performances of Mr. Hawker on the Sopwith biplanes in the attempt on the "Daily Mail" circuit of Britain and elsewhere, and hoped that a British machine might win the Gordon Bennett under the new rules.

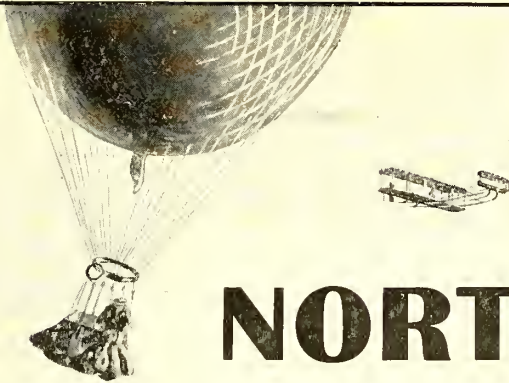
The Marquess of Tullibardine, in proposing the toast of The Guests, said that never had there been so many present at an aviation function, and that they had in the room 75 pilots of

one kind and another—he did not specify whether he meant Naval, Military, and civilian, or good, bad and indifferent, presumably the former. Referring to the guests, he said we had with us M. Deutsche de la Meurthe, to whose business capacity and generosity was largely due France's position as the leading nation in aviation. There was also present Dr. Glazebrook, the head of the scientific branch of aviation, and we had Captain Murray Sueter, R.N., the Director of the Air Department at the Admiralty, a capable administrator who had raised the Naval Air Service to a high state of efficiency; also there was Captain Godfrey Paine, R.N., Commandant of the Central Flying School, who had shown that when properly united the Army and Navy could work better together than they could apart, and who had supplied so many fine pilots to the present excellent Flying Corps. Owing to the excellence of the Flying Corps it was now possible for the Government to say that they had profited by the mistakes of others. We could thank the present Secretary of State for War for the Royal Flying Corps—(prolonged cheers of derision)—and, he added in explanation, at any rate, Colonel Seely certainly never did a wiser thing than when he appointed General Henderson to his present position. Here the audience gave vent to a genuine outburst of enthusiasm. Lord Tullibardine pointed out that General Henderson had managed to win through against great difficulties, his department should not be hustled, and it was growing every day on sound lines. It was better to be efficient in all details than to have a big fleet of aeroplanes without pilots (a sentiment with which everyone will cordially agree). We had also with us Mr. Churchill. (Here again was a remarkable outburst of enthusiasm among the audience.) Mr. Churchill, like himself, was probably happier in the saddle with a sword in his hand than in any other condition, and he was very welcome because of the energy he showed in everything he did.

Mr. Churchill, whose rising was greeted with prolonged cheering, and cries of welcome which ranged all the way from view-holloas to what Mr. Robert Hale describes as "yacht noises," said that he was glad to find himself in a position again to watch their Chairman operating at a public function. The last occasion on which he had had such an opportunity was three days after the battle of Omdurman, when led by that enterprise which was characteristic of him, Lord Tullibardine tried to render first aid to a wounded Dervish by extracting a bullet with a button-hook, while he himself stood by with a revolver in case the benevolent intention might be misinterpreted. The speaker said that he shared the keen interest of all those present in aircraft. He recognised that we had come late in the field, and not for the first time were we engaged in the process of catching up. He was particularly interested in the subject because these great developments were taking place while he himself was in office.

Some people thought that it was melancholy that this new art should be appropriated for war purposes, but it was evident that the two Services working together must be the main propulsive force of aviation for some years. He recognised the brilliant work done by civilian pilots, but it was only floods of tax-payers' money which could carry aviation forward. Before aircraft could be used for pleasure flying it would be necessary for one to travel punctually and arrive in good condition. This country made flying a more severe test than does the open country on the Continent. It was only thoroughly reliable engines that could assure the possibility of flying for the million, though he agreed that the risk was greatly exaggerated, because the man in the street only read the headlines of evening papers when aviators were killed.

Since he had been at the Admiralty there had been a greater actual number of fatal accidents in submarines than in aeroplanes, apart from the fact that one submarine accident meant the loss of a number of lives at one time. He had asked himself whether there was any special way in which the public and the Royal Aero Club could assist the progress of aviation. In the House of Commons there was a general opinion that the Government should do everything. He himself thought that the public, guided by the Club, could help by providing landing



AT STAND

No. 72

AERO and MOTOR BOAT
EXHIBITION,

OLYMPIA

March 16th to 25th, 1914

NORTH BRITISH

Aeroplane & Balloon Fabrics

Aeroplane Tyres

Celluloid Varnish

Fabric Waterplane Floats

Aeroplane Springs

Masticated Rubber

Non-inflammable Cement

Rubber Boots and Clothing for Aeronautical, Motor Boating and Yachting use.

Rubber Tiling for Motor Boats, Yachts, etc.

Rubber Mats, etc., etc.

A comprehensive All-British Exhibit manufactured by the Pioneers of Rubber-proofed Balloon and Aeroplane Fabrics.

The NORTH BRITISH RUBBER Co., Ltd.,
Castle Mills, EDINBURGH.

(B942)



BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SAFETY.

BLERIOT-AERONAUTICS, Belfast Chambers, 156, REGENT STREET, LONDON, W.

Works: BROOKLANDS, BYFLEET. SURREY.

SPECIAL INCLUSIVE TERMS FOR TUITION:—

Telegrams—

"BLERIOPLAN, LONDON."

NORBERT CHEREAU, General Manager.

elephone—

REGENT 3653.

THE HAMBLE RIVER LUKE & CO. LTD.

HAMBLE, HANTS, ENGLAND

H NAVAL SEAPLANES H

OLYMPIA SHOW STAND NO. 68.

Telegrams: "ENGINEERING, HAMBLE."

Telephone: No. 1 HAMBLE

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

grounds along certain aerial routes. Progress might be assisted if it were possible to insure pilots at ordinary rates.

Progress in aviation during last year had been very great. We had profited by the mistakes of others, and had aided progress ourselves. He thought that at the moment the attempt to fly the Atlantic was premature, though most of us would live to see as common thing voyages which were now extraordinary. In this country we had not the prevision of rivals abroad, but we were coming along. Flying was one of the best tests of national quality. It was a better test than most other games which were the subject of international contest. He was glad to have lived long enough to have seen this flying age. Flying must in future exert a potent influence not only on the habits of man, but in the military existence of States.

M. Deutsche de la Meurthe, also replying for the guests, said how satisfactory it was to him to see his predictions fulfilled. Only the previous day he had received M. Bonnier at Issy and had told him that he had forgotten in his trip to the Pyramids to ask the Sphinx what was the Eighth Wonder of the World, for the Sphinx would certainly have replied that it was the aeroplane and its admirable pilots. England had now no reason to be envious about other countries. In time the aeroplane would bring peace to the world.

The Britannia Trophy given to the Club by Mr. H. Barber for the most meritorious flight of the year, was presented by the Chairman to Captain Longcroft, of No. 2 Squadron, R.F.C., for his non-stop flight of 445 miles from Montrose to Farnborough via Portsmouth, on the Bristol-built "B.E." (70-h.p. Renault), Captain Longcroft acknowledging the presentation with military brevity and becoming modesty, so far as his enthusiastic reception permitted.

M. Wolff, on behalf of the Michelin Brothers, then presented a cheque and trophy to Mr. Reginald Carr for his 300-mile flight on the Grahame-White five-seater, 100-h.p. Green, Mr. Carr's reply being inaudible amid the applause which greeted him.

General Henderson, in proposing the Chairman, made one of the most charming speeches it has been one's good fortune to hear. He said that he had known Lord Tullibardine for a

number of years. When he first met him he wore the resplendent uniform of the Household Cavalry. When he next met him he wore the tarboosh of the Egyptian Cavalry, and on the third occasion he wore the khaki of the Scottish Horse, two regiments of which he raised himself and commanded with such distinction in South Africa. He had never known anyone who combined to such a degree high adventure with a sense of duty and service to his country. He was now even serving his country in the House of Commons, though to some it seemed a somewhat relaxing atmosphere. Lord Tullibardine had supported the experiments of an inventor of flying machines when anyone who believed in flying was considered a crank. Now that Lord Tullibardine was Chairman of the Royal Aero Club he was sure the Club would benefit enormously.

Lord Tullibardine, in replying, said that this appeared to be a good moment at which to ask landlords to be patriotic, so he thought the landing-ground scheme would be well supported, for the grounds would have to be given by landlords. As regards insurance, which he thought was possibly rather a painful subject for the First Lord, one could scarcely expect shareholders to be so patriotic as other people. In conclusion he complimented Mr. Harold Perrin, not only for the excellent organisation of the dinner that evening, but for his good work for aviation in general, a tribute to Mr. Perrin's work which was heartily endorsed by the assembled company. Whereupon Mr. Perrin, in response to demands for a speech, said, "Thank you on behalf of my staff and myself."

After the official proceedings terminated, and as there was no entertainment, a number of those present spent a pleasant hour or so discussing aviation in general. The opportunity of meeting so many of one's friends from distant parts of the country was decidedly agreeable, and suggests that something in the nature of an official reception by the Aero Club on another occasion might be worth considering. Mr. Churchill showed his keen interest in aeronautical matters generally by being practically the last to leave, and by holding long conversations with various officers of both Services as well as with several civilian fliers.

"The Aeroplane" at Olympia.

During the Aero Show from March 16th to 25th, the editorial and advertisement offices of this paper will be transferred to Olympia. THE AEROPLANE stand will be in the same position as last year, next to the Post Office, in the left-hand corner of Olympia as one enters from Addison Road. The proprietors of this paper will be glad if readers will consider the staff entirely at their disposal, if they want to make in queries about anything connected with aircraft. On the stand there will be an excellent selection for sale of all sorts of books dealing with aeronautics, so that those desirous of studying the subject can, if they wish, equip themselves with the best literature. Visitors to the Show can have letters and telegrams addressed to them "C/o THE AEROPLANE, Olympia, Kensington, W.," and those who wish to meet others are welcome to make appointments to do so at THE AEROPLANE stand.

The Aeronautical Society.

OFFICIAL NOTICES.—(1) Elections.—Members: Richard T. Gates; Lieut. F. V. Holt, R.F.C.; Hermann Shaw. Assoc. member: Norman C. Spratt. Student: C. Roland Taylor. (2) Annual General Meeting.—The annual general meeting of the Society will be held on Wednesday, March 18th, at 8 p.m., at the Royal United Service Institution, Whitehall, S.W. (Rule 39.) (3) Meetings.—The ninth meeting of the present session will be held on Wednesday, March 18th, at 8.30 p.m., when Major-General R. M. Ruck, C.B., will preside. Colonel H. C. Holden, F.R.S., F.Ae.S., will read a paper on "Lessons Accidents Have Taught." The tenth meeting will be held on Wednesday, April 1st, at 8.30 p.m. Messrs. B. C. Hucks and C. Gordon Bell will read a paper on "Three Years' Flying Experience."

AERO SHOW AT OLYMPIA.—At the forthcoming Aero Show the Society is arranging a series of popular scientific lectures, to be given daily. The Society will have a small office for inquiries, etc., at Stand 20.—B. G. COOPER (Sec.).

New Companies.

Airships, Ltd.—This company has been registered with a capital of £52,500 (50,000 preference shares of £1 each, and 5,000 deferred shares of 1s. each). Objects: To acquire the business now carried on by G. H. Thomas, at 47, Victoria Street, S.W., under the style of "The Airships Company," and to carry on the business of dealers in aeroplanes, balloons, airships, and flying machines (whether heavier or lighter than air), hydroplanes, etc., and also the business of hangar keepers, and general carriers of passengers and goods by air, land or water, mechanical and aeronautical engineers, and aeronautics, etc.; also to enter into an agreement with G. Holt Thomas. First directors: G. Holt Thomas (managing director), 47, Victoria Street, S.W., and F. Thomas. Qual. £100. Remun. £100 each per annum. Private company.

An Apology.

On behalf of British aviators in general THE AEROPLANE ventures to apologise to the German Aircraft Works Co., Ltd., for the action of a British pilot who entered by force their shed at Brooklands on Sunday last in the absence of any of the D.F.W. employees. Doubtless the pilot in question was merely prompted by a desire to show his friends the excellent workmanship of the D.F.W., and had forgotten that Brooklands business is not now conducted as it was formerly, but his enthusiasm may be misunderstood by our German friends, who may rest assured that burglary is not a hobby of British aviators as a rule.

A Query.

As Védérines seems to be in constant trouble would it not be possible to insist on his machines in future being fitted with "duel" control?—D. W. T.

Congratulations.

RHODES-MOORHOUSE.—On Wednesday, March 4th, at 49, Brompton Square, London, W., the wife of William B. Rhodes-Moorhouse, of a son.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
 LONDON AERODROME, HENDON.

The Latest Thing
 IN
FLYING BOATS

42 STAND 42
OLYMPIA

PERRY, BEADLE & CO.

Offices and Works:
 Gould Rd., Twickenham

WHITE and THOMPSON Ltd.

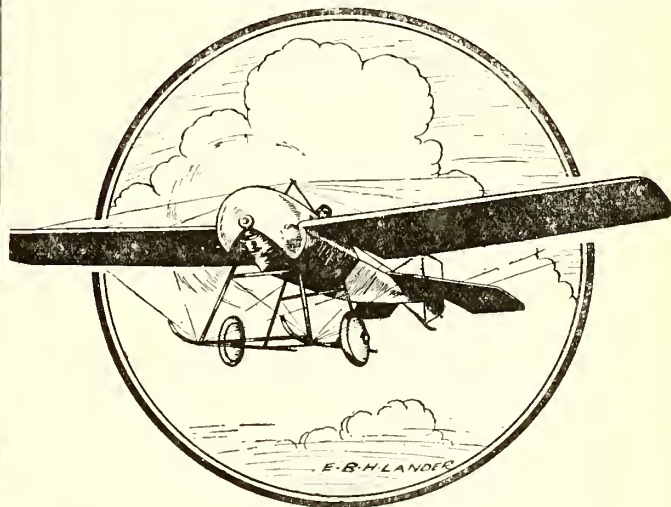
SOLE CONCESSIONAIRES

FOR THE

CURTISS
FLYING BOATS
and ENGINES

IN THE UNITED KINGDOM
 AND THE
 BRITISH COLONIES

MIDDLETON, BOGNOR, SUSSEX
 Telephone— 48 Bognor Telegrams—
 "Soaring," Bognor



"Blackburn" Monoplanes, Biplanes,
 and Hydro-Biplanes,
 Propellers and Accessories.

THE BLACKBURN AEROPLANE COMPANY,
 BALM ROAD, LEEDS. (Stand 63 Olympia).
 Telegrams—"Propellers, Leeds." Phone—2822 Central.
 London Offices: H. A. TURRILL, 104, High Holborn, London.
 Telephone—4950 and 1791 Holborn.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

More Points of View.

The following letter has been received from an officer who is keenly interested in aviation, but is not connected with the R.F.C. :—

"You have dealt with the F.E. 2 accident in a fearless and almost ruthless manner, even to the extent of wounding the susceptibilities of persons unconnected with it. But you have not pointed the moral. I suggest that it is this :—

"Before Mr. de Havilland went to the R.A.F. it never turned out a successful aeroplane. When he went there, aeroplanes were merely a side-line, the main resources being utilised to build small airships. Suddenly the B.E.2 appeared and showed itself very much in advance of any machine existing then. You yourselves were among the first to admit this and to accord some small measure of justice to Mr. de Havilland at the time of the Military Aeroplane Competition. Subsequently the B.E. type was developed and proved itself a long way the best machine in the British Service; probably at that time the best in the world.

"Mr. de Havilland never had the credit for his work, for several reasons :—(1) The "higher officials" at the R.A.F. and other places took it; (2) the aeroplane Press, *including yourselves*, did not always maintain the standpoint of absolute fairness to Mr. de Havilland. From time to time assertions that the B.E. was a 'copy' of other machines crept in, perhaps as a 'sop' to the British manufacturers; (3) Mr. de Havilland, being a gentleman, sat tight and said nothing, knowing that in the end 'truth will out.' This is just what has been happening, only the process is a little slow. Only this week you pay him the rather doubtful compliment of calling him 'a practical man,' forgetting, perhaps, that Disraeli defined such an individual as 'a man who practises the errors of his forefathers.' In any case, now that he has left the R.A.F., it has apparently returned to its former state.

"The moral is therefore that, however valuable Mr. de Havilland is to the Inspection Branch, it should give him back to the R.A.F.—only this time he must occupy a position in some proportion to his worth—a position independent of the interference of others. The R.A.F. will then fulfil its true function—to lead the industry in design."

The next letter emanates from the direction of Farnborough, and is obviously an example of humour as practised by R.A.F. officials and their friends. It so closely resembles in spirit the jests so popular among the said officials at the expense of aeroplane constructors and their employees when submitting their machines to the R.A.F. tests that it is well worth reproducing, apart from the willingness of this paper to give every point of view a fair field :—"Sir,—I hope that you will excuse the liberty I take in writing to ask that my application may be considered when appointing your new junior clerk. In addition to a thorough knowledge of shorthand and typewriting, I am an excellent German scholar, have had a good training, and possess in addition special qualifications which should render my services of great value to 'The Aeroplane.'"

"My father was an unsuccessful inventor who was always completely misunderstood by the War Office. Without disclosing the details of his machine, I may say that he used a vacuum chamber and heliocoaster in order to obtain lift. You will understand from this that most of my youth was spent in learning to hate the War Office and all Government Departments. This should be useful. My composition is free and flowing, with a large fund of carefully-veiled spite, and I am generally credited with the happy knack of being able to clothe my facts in such a way as to produce any desired meaning. I am very versatile and have often been congratulated upon my inconsistency. Such gifts are, as you will agree, invaluable when properly applied to the criticism of a Government Department.

"Another good point which I beg to make is my intense hatred of that contemptible body known as the Royal Aircraft Factory, and more particularly for certain officials there. The reasons for this antipathy are, however, in no way connected with the fact that I once had a serious difference with one of the minor officials there, or that I got the worst of the argument. They lie deeper, and would not incapacitate me from reporting upon the doings of this particular department to the

worst of my ability. I could, in fact, give full play to my various gifts. As you may be aware, I have already been connected with the aeronautical Press for some time, chiefly engaged in writing puff notices for the 'Bustall Monoplane Co.' and for many other private manufacturers with evil designs.

"In this work I proved myself quite equal to the occasion. You may possibly have read my account of the last accident to the Bustall, wherein I succeeded in throwing the whole of the blame on the passenger, who was unfortunately killed. On the other hand, if you read my writings anent the collision of two Government-designed machines while in the air (March, 1918) you would notice the cleverness with which I absolved the pilot from all blame, proved conclusively that the passenger was unconscious at the time of the accident, and further established as a definite fact that both Government machines were badly designed and completely unstable.

"These facts in themselves should convince you of the value of my services to 'The Aeroplane.' If you do me the honour to appoint me to the post you may rest assured that I shall always do my very worst in your service. I could, if appointed at once, begin an article of about 5,000 words guaranteed to do irreparable damage to anyone you may happen to dislike or against whom you foster any private grievance."

This letter is signed "B. E. Tooting," a very apposite *nom de guerre*, indicating, doubtless, the temporary death of the R.A.F. official trumpeter.

Mr. A. R. Low on "Rational Design."

At the Aeronautical Society's meeting on Wednesday, March 4th, Mr. A. R. Low read a very suggestive paper dealing with the possibilities of treating the design of actual aeroplanes on a rational mathematical basis. It is unfortunate that overwork and, one understands, indisposition rendered it impossible for Mr. Low to complete the work which he had proposed, and it may be assumed that these causes also account for his having committed the unpardonable mathematical heresy of differentiating a purely empirical expression for the purpose of obtaining limits. The paper was purely mathematical, and therefore of somewhat limited interest.

In the discussion, Dr. A. P. Thurston drew attention to the necessity of basing such attempts to deal with aeroplane design problems on sound theoretical basis, "as when theory goes wrong, it goes wrong badly," and that, as there were many desirable attributes in an aeroplane which tended to detract from efficiency, care must be taken to allow for such limitations, which complicates the mathematical treatment greatly.

Mr. Busk, in answer to a question of Mr. Low, said N.P.L. wind-tunnel experiments could be regarded as accurate to $\frac{1}{2}$ per cent.

Mr. Green, of the Royal Aircraft Factory, speaking for "us poor designers," admitted that it was in practice impossible to design "rationally" in Mr. Low's sense, and said that the starting-point in design to-day had to be landing-speed, and that from that designs had to be worked out by trial and error. [Judging from results, largely by "error."—Ed.]

Mr. Mervyn O'Gorman regretted the absence of M. Coanda, whom he thought would have enlivened the discussion. He emphasised the importance of careful wind-tunnel experiments and of determining the correction for applying these experiments to full-size machines.

Mr. Low, in reply, said that he considered he had done a good work in keeping so many away from the R.Ae.C. dinner, and said that he was in hopes that aerodynamics would shortly become an exact science. (It must be pointed out, however, that the mathematical treatment of empirical formulæ—however intricate—cannot be considered as exact science, and this is apparently all Mr. Low has to offer as yet.—W. H. S.)

A Fine Engine Test.

The latest test of the A.B.C. engine built by Armstrong-Whitworth's at Newcastle was one of the most satisfactory ever carried out by an internal combustion motor. Giving full power the whole time, namely 105 to 110 h.p., the engine ran for 37 hours without a falter. Then a plug blew out. The whole set of plugs were then changed and the engine continued to give full power for a further 33 hours, completing the 70-hour test intended.

THE
Monk Engineering Co.,
LTD.

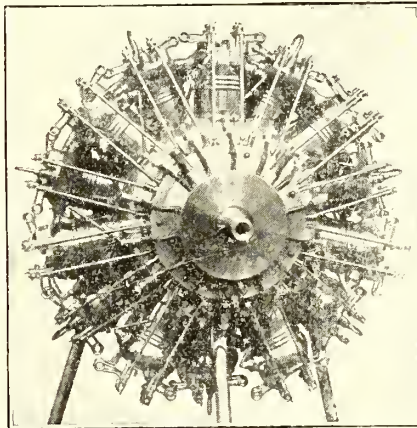
High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES!

SALMSON
AERO-ENGINES
SYSTEM CANTON - UNNE.

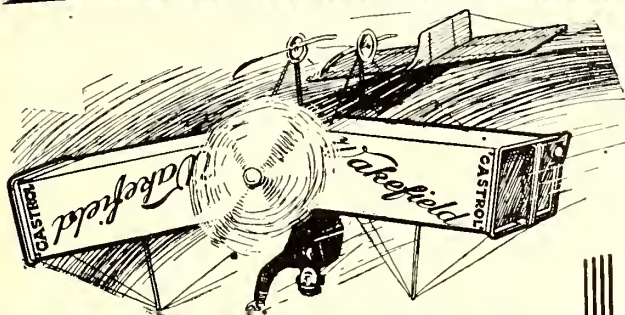


'Phone No.:
7 Stroud.

Tele.
Address:
Humpidge,
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

London Office:—87, Victoria Street, S.W.
'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.



MR. B. C. HUCKS
AND

MR. G. HAMEL
lubricate their engines with
WAKEFIELD

'CASTROL' Regd.
MOTOR OIL

FOR THEIR 'LOOPING' EXHIBITIONS.
Is it possible for us to advance more
convincing proof of 'Castrol' excellence?

C. C. WAKEFIELD & CO.,
Wakefield House, Cheapside, London, E.C.

STAND No. 99 AERO & MARINE EXHIBITION
OLYMPIA. C. D. C.

FOR EFFICIENCY
& RELIABILITY IN

Aero-Radiators

Send your enquiries to the
well-known radiator experts

The Motor Radiator Mfg. Co.,
Greet, Birmingham.

Telegrams - Nerleak, Birmingham.
Telephone - 455 Victoria, Birmingham.

Olympia Show
Stand No. 36.

Flying at Hendon.

A drizzling foggy morning served to discourage many from visiting Hendon last Saturday, but those who were not deterred were rewarded by a fine afternoon and much good flying. After a flight or two by Messrs. Hall, Goodden and Marty, M. Verrier came out on a new Henri Farman and proceeded to invert the machine violently at about 100 feet from the ground.

The 4-lap race round Bittacy Hill then commenced, Messrs. Strange and Cripps on G.-W. Box-kites, Mr. Goodden on a Caudron (45-h.p. Anzani), Mr. Noel on the G.-W. Maurice Farman, Mr. Carr on "Lizzie," M. Verrier on the Henri Farman (80 Gnome), and M. Marty on the G.-W. Blériot, all turned out. The order of return was M. Marty (1st), Mr. Carr (2nd), M. Noel (3rd), Mr. Strange, Mr. Goodden, and Mr. Cripps. M. Verrier retiring to perform several more inside-out turns.

During the remainder of the afternoon flying was continuous, all the above-named pilots working hard. Mr. Goodden, at about 1,000 ft., being particularly assiduous in showing every possible aspect of his Caudron to the crowd.

On Sunday, a 40-m.p.h. gale and much rain restricted flying to Messrs. Noel and Carr, who each made several circuits at about 500 ft. on the Maurice Farman and "Lizzie" respectively.

Coming Events at Hendon.

On Saturday, March 21st, the "Aero Show" Speed Contest will be decided, the chief prize being the Shell Trophy and 50 guineas. During the Easter Holidays (April 9th to 13th inclusive) will be held the Seventh London Aviation Meeting, making the opening of the Hendon summer season, at which prizes to the value of £400 will be competed for. Further details of this meeting will be announced later.

On Friday, March 20th, at the Royal Automobile Club, the first annual dinner of the London Aerodrome will be held, with the Earl of Lonsdale in the chair. During the evening the trophies awarded for races at Hendon will be presented to their winners.

Flying at Brooklands.

The weather in general this week has not been conducive to flying. On Monday morning Mr. Alcock was out on the Sunbeam-Farman, and Mr. Raynham flew the Avro to Shoreham for lunch and back with Mr. McGeagh Hurst. In the afternoon several Argentine naval officers came to the aerodrome, which seems to be attracting foreign visitors lately. Mr. Barnwell evolved with great skill on the Vickers gun machine, the gun being fired at intervals. Mr. Raynham also gave a good show on the Avro.

Messrs. Raynham and Jones were out on Tuesday morning. Mr. Barnwell was out on the 70-h.p. Vickers box-kite in the afternoon but found it rather bad for school work. The D.F.W. did a circuit, but retired owing to the presence of some bumps.

There was no flying on Wednesday, Thursday, and Friday. A Blériot (80 Gnome) belonging to Mr. Hucks arrived for overhaul, and the A.B.C. on the Avro was tested on Wednesday.

On Saturday the schools were out early. Mr. Raynham on the Avro amused himself in the morning by chasing birds. He was also out in the afternoon. Two more Blériots arrived. Mr. Raynham was out on Sunday in a gale of wind and rain just to save the reproach of a blank day.

Mr. Jones has had the Isaacson engine, lent him some time ago, recalled by the makers, which seems a pity, as it was advertising itself well on the Flanders and was also making a very good pilot. Mr. Gaskell Blackburn's tractor biplane (40-h.p. A.B.C.) is now nearly finished and is a very creditable piece of work for a beginner, and a one-man job at that. He has worked very hard at it and thought out his detail designs with much care, so one wishes it every success, merely hoping he will go steadily about his first tests.

The new Blériot shops are merely awaiting belting to get going properly. Mr. Alex. Davidson, the works manager, has laid out everything in excellent style, and his previous experience in big shops is a guarantee that no slipshod work will be passed.

Mr. Hamel at Hereford.

Mr. Hamel flew at Hereford before a large and enthusiastic crowd on Saturday, March 7th. Mr. Hamel looped six times and carried five passengers, leaving in the evening by air for Witley Court, Worcester, where he spent the week-end, taking with him Baron de Gunzburg as a passenger, flying above the clouds at 8,000 ft. On Sunday before lunch, Mr. Hamel looped, tail slid, and committed chutes de côté with Lady Dudley. After lunch, Lord Wodehouse, Lord Desmond Fitzgerald, the Hon. Ivor Hay and Mrs. Peto took passenger flights. At 6.40, in the dark, Mr. Hamel flew from Witley to Worcester (7½ miles) in 4½ minutes with Baron de Gunzburg, landing by the light of a few cycle lamps. During the previous week-end at Witley, Mr. Hamel took up Prince Paul of Servia.

Mr. Hucks at Nuneaton.

On Thursday last Mr. B. C. Hucks flew at the aerodrome presented by Mr. Melly to the town of Nuneaton, in rain and a 40-mile wind. He first flew his two-seater, and later on the "looper" at 700 feet, made one loop, then a double, and a single, which brought his total to exactly 200 loops. On Saturday, before a big crowd, Mr. Hucks repeated his performance in better weather, and flew upside down for over a mile.

To-day (Thursday) and Saturday Mr. Hucks will be giving his demonstrations of looping at Hendon, in conjunction with Mr. Hamel.

The Slack Fund.

The following is a further list of subscriptions received to date in connection with the above fund:—56th Div. St. John's Ambulance, £1 10s.; G. P. S., Harrogate, 2s. 6d.; M. Manton, 10s.; L.G. 55095, 2s. 6d.; R.F.C., Upavon, £2 3s.; R. M. Alpini, 2s. 6d.; B. Garter Read, 2s. 6d.; W. Moorhouse, £1 1s.; J. Small, 10s. 6d.; G. Albert, £2 2s.; F. D. Jackson, Leeds, 10s.; D. W. Cutchinsore, 5s.; G. F. Dean, 5s.; Chas. H. Haigh, 5s.; P. H. Hargreaves, 5s.; R. A. Broomfield, 2s. 6d.; A. Moore, 2s. 6d.; Oscar Barthel, 2s. 6d.; H. C. Grove, 2s. 6d.; J. C. Strecker, 2s. 6d.; R. S. Poultney, 2s. 6d.; F. J. Hodyson, 2s. 6d.; H. A. Seal, 2s. 6d.; Frank Owen, 2s. 6d.; S. Simms, 2s. 6d.; J. H. Thompson, 2s. 6d.; J. J. Johnson, 2s. 6d.; F. H. Milns, 2s. 6d.; R. E. Whitfield, 2s. 6d.; L. Midwood, 2s. 6d.; Chas. M. Dawson, 2s. 6d.; F. Swaltz, 2s. 6d.; F. Gill, 2s. 6d.; E. Corke, 2s.; T. A. Bromley, 2s.; J. Whitfield, 1s.; H. Dawson, 1s.; H. Gledhill, 1s.; G. Hydes, 1s.; A. Althorp, 1s.; B. P. Edwards, 1s.; S. Radcliffe, 1s.; F. Marshall, 1s.; A. Huby, 1s.; A. Benson, 1s.; J. E. Kershaw, 1s.; S. Savory, 1s.; Gerald Simms, 1s.; E. Payne, 1s.; S. Dawson, 1s.; Edwin C. Bolt, 1s.; F. Townsend, 1s.; H. J. Gaze, 1s.; W. P. Bang, 1s.; W. H. Collins, 1s.; F. H. Brough, 1s.; Geo. Dixon, 1s.; F. W. Butler, 1s.; W. H. Snow, 6d.; A. Cuckroyd, 6d.; Edgar Mennell, 2s.

A New Flying-boat School.

Although there are quite a number of aviation schools in this country, including one or two where flying is taught on the punt and catamaran types of waterplanes, we have hitherto lacked a flying-boat school, and it is therefore with pleasure one hears that Messrs. White and Thompson propose to supply this want.

This enterprising firm, whose full title and address is White and Thompson, Ltd., Middleton, Bognor, Sussex, propose to undertake the construction of both Curtiss boats and engines, and are laying down a large machine to be fitted with two British-built 100-h.p. Curtiss engines, on which an attempt will be made on the "Daily Mail" Circuit of Britain.

Two standard boats are also on order for Mr. Gerard Hudson, who will represent the Curtiss interests in South Africa. Mr. Hudson will be the first pupil at the school, and instruction will commence as soon as Lieut. Porte, R.N., returns from the United States in a week or two.

One knows that Messrs. White and Thompson have a good thing in the Curtiss boats and engines, and it should be quite possible to establish a really flourishing school, for a well-designed flying-boat is undoubtedly one of the safest types of aircraft.

**FOR THE LATEST AND BEST
DOPES**

SEE THE

CELLON

Stand

No. 104 Olympia

CELLON, LTD.

17, Old Broad St.
LONDON, E.C.

Telegrams— "AJAWB, LONDON" Telephone— 5359 LONDON WALL

STAND No. 70

**EASTBOURNE
AVIATION
CO., LTD.**

ARE EXHIBITING A

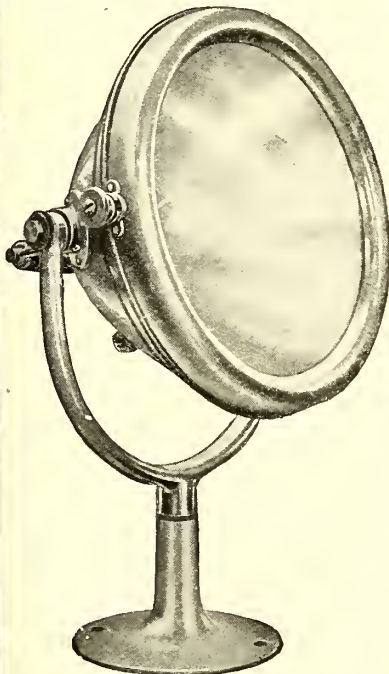
TRACTOR BIPLANE

WE HAVE EXCELLENT ACCOMMODATION

FOR **WATERPLANES**

ELECTRIC LIGHT

FOR
WATER-
PLANES



This is part of
our Standard
Lighting Set,
and we shall
appreciate en-
quiries for any
class of Electric
Lighting for
Cars, Launches
or Flying
Machines.

**RICHARD PAPE, Ltd.,
BELVEDERE, KENT.**

PASHLEY BROS.
SHOREHAM AERODROME,
SUSSEX.

Tuition for R.Ae.C. BREVET.

BEFORE JOINING ANY OTHER
SCHOOL, APPLY FOR PARTICULARS
OF OUR

Special Reduced Terms

. . . and . . .

New Concessions to Pupils.

Passenger Flights.

"Joints in Materials for Aircraft."

A recent article by "Pegasus" under the above title in "The Times" Engineering Supplement is typical of the attitude of many engineers towards the methods of construction used in aircraft. Having no practical acquaintance with the conditions under which aircraft operate, and being without experience of what defects are apt to reveal themselves in actual practice, they condemn unhesitatingly any deviation from what would be considered good practice in, say, bridge building, and lay it to the account of the ignorance of the aeroplane constructor. Thus, it is usual for engineering journals to scoff at the use of timber in parts under stress in an aeroplane without it having occurred to them to inquire why wood is so used and therefore in ignorance of the very excellent reasons which can be adduced for this practice.

[The attitude of the writer in the "Times" is the more surprising in that "Pegasus" has so often reflected or foreshadowed the official views of the Royal Aircraft Factory that he has come to be regarded in "the trade" as practically the mouthpiece of that establishment.—Ed.]

To return, however, to "Pegasus." He refers to "factors of safety—appallingly small" which is a little misleading. Government specifications call for a minimum factor of safety throughout the structure of 6. Also, for wood a maximum stress of 1,000 lbs. per square inch for ash is practically insisted on, which is a factor of safety of the order of 10 even for the most ordinary timber, and the majority of competent British designers usually run spars at lower stresses than this.

The question of jointing steel tubes, to which he draws attention, admittedly produces some difficulties, and is one of the reasons for not using steel; hence the majority of conservative designers will not use steel tubes except in compression, when joined to wood.

On the subject of glued spars he entirely underestimates the value of good gluing and the care which is taken to ensure and preserve this. A glued spar, taped and varnished with a waterproof dope after gluing, is stronger than a similar solid spar, and the inside gluing will last longer than the machine will remain intact. In the same way no glued propeller made by a reputable maker ever terminates its life by coming unstuck—they are always broken first, and the French polish which "Pegasus" mentions is not relied on for waterproofing.

It is true that the R.A.F. specify shellac, to which

"Pegasus" refers as "poor in the extreme," as a varnish for wood spars; but, as it is common knowledge that shellac is neither waterproof nor insoluble in water this varnish is usually only used for machines built to the order of the Royal Aircraft Factory.

As to stripping wing covers apparently intact after six months' use or exposure owing to the poor qualities of the dope, the pilot who neglects to inspect the internals of his wings at biannual intervals at the utmost, deserves the "temporarily insane" verdict.

Those connected with the aeroplane industry have considerable cause to resent the attitude of the superior persons who, without any appreciation of the actual difficulties with which they have to contend, write in lofty tones of the ignorance and lack of mechanical ability which they display.—W. H. S.

The Support of Home Industries.

Of course, it is highly satisfactory that so many young men of the best families should be taking so enthusiastically to flying, but one wishes that they could divest their minds of the idea, apparently a survival of motoring days, that in order to acquire the best machines it is necessary to go abroad. We find young Lord Carbery in a most sporting spirit entering for the Schneider Cup, but unfortunately it is on a foreign-built machine, and in the same way Lord Edward Grosvenor has been doing most of his flying abroad. Surely it is the duty of those who derive their incomes from British sources to spend as much as possible of their income in this country, provided always it is possible to purchase British goods equal in quality and price to those made abroad. To-day there is not even a decent excuse for going abroad for the best machines, because practically all the best French constructors and designers are either actually building or on the point of building their machines in England, where, on the whole, better workmanship and material are to be had than abroad.

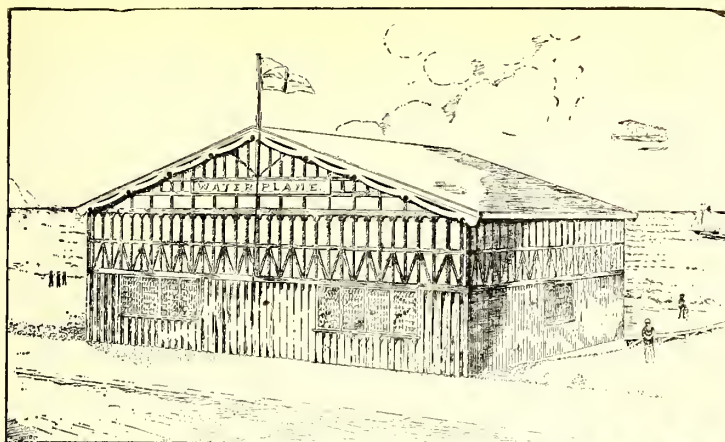
To the British Press.

One would suggest to confreres in the daily press that instead of devoting so much space to what people say they are going to do abroad in the matter of the Trans-Atlantic flight, they might have a look round some of the British aeroplane manufacturers and tell the people of this country something about the exceedingly fine machines which are actually being built in this country at the present moment.



The late Robert Slack, for whose widow and children a fund is now being raised. He is here seen on the Grahame-White Co.'s Morane-Saulnier monoplane.

Photograph by F. A. Birkett, Perry, Read, Shepherds Bush, W.



HANGARS.

Plain and Cheap, or Ornamental
for Watering Places, etc.

Soundest possible construction.

Allport's Sliding Steel Doors are the
only perfect type and can be fitted
at slight extra cost.

Write for quotations for any size to :

The Wire Wove Roofing Co.
108, Queen Victoria St., London, E.C.

"EMAILLITE"

THE PREMIER DOPE
British Manufactured

"AS TIGHT AS A DRUM."

As adopted by H.M. Government and
all the leading Manufacturers.

The **BRITISH EMAILLITE Co., Ltd.**
30 Regent Street, Piccadilly, S.W.
Phone, 280 Gerrard. Wire, Santochimo, London



Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality
ON ADMIRALTY AND WAR OFFICE LISTS



R. W. COAN

219,
GOSWELL
ROAD,
LONDON, E.C.

Telegrams—
Kranka es,
Isling,
London.

Telephones—
3846 City
4879 Central.

GODDARD'S MOTOR, MOTOR-CYCLE, and CYCLECAR HOUSES.



ft.	ft.	ft.	high	...	...	£ s. d.
8	6	7 1/2				3 16 0
10	7	8				5 8 0
12	8	8				6 15 0
14	9	9				8 17 6
15	10	9				10 0 0

Carriage Paid.

These houses are made in sections to bolt together. Easily fixed.
Made of well-seasoned 3 in. T. & G. and V-jointed Matchboards,
and complete with floor and windows. Wide double doors, lock and
key. Roof felted with Patent Vulcanite Roofing.

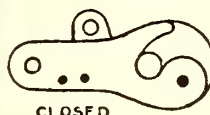
Large Illustrated Catalogue with prices of other houses, post free.

Makers of Portable Wooden Buildings of all descriptions.
GODDARD'S, Ltd., Crown Works, Vicarage Lane, Ilford, Essex.
Telephone : 880 Ilford.

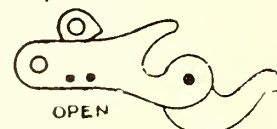
RELEASE GEARS for AEROPLANES

AERO EXHIBITION, Olympia. Stand No. 17.

REG. PATENT NO 17,090-11.



CLOSED



OPEN

SPECIAL STEEL STRAINERS, EYEBOLTS
BOLTS and NUTS, ETC. ALSO ENGINE HOUS-
INGS, and STEEL TUBE WORK.

Prices and Catalogue Free.

RUBERY, OWEN & CO. DARLASTON,
SOUTH STAFFS
Manufacturers of Aeroplane Accessories.

CRITCHETT WELDING & ENGINEERING CO., WELDING & BRAZING .. SPECIALISTS ..

Aluminium Welding Guaranteed.

Wire, Write or Phone

Tele. Address: Flexicablo, Watloo, London. Phone: 2424 City.

Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.

H. A. TURRILL

Aeronautical Engineer and Automobile Representative

GWYDIR CHAMBERS,

104 High Holborn, London, W.C.

AERONAUTICAL. — Balloons, Hangars, and Blackburn
Aeroplanes.

AUTOMOBILE. — All makes of Cars supplied. Special
Delivery of ARROL-JOHNSTON and KRIT CARS.

Telephones: **HOLBORN 1791, 4950.**

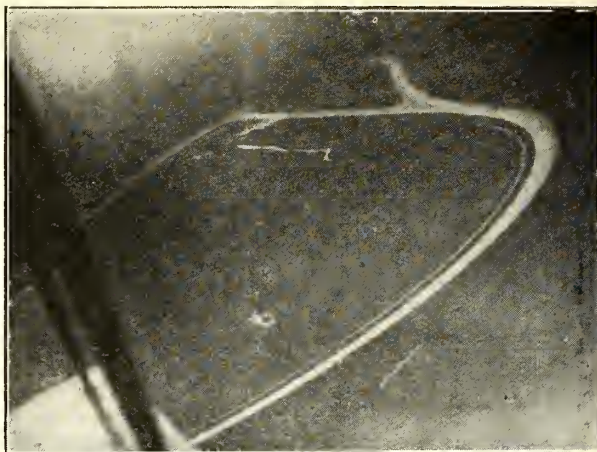
The Beatty Flying School.

One is glad to hear that already pupils in goodly numbers are being enrolled at the Beatty Flying School. Mr. Beatty himself has been seriously ill recently or more would have been heard of the school ere this. He is now quite well again and the school will soon be hard at work.

It may be interesting to recall some of Mr. Beatty's early experiences in flying. Like many other early aviators, it was as an inventor he entered the field of aviation, being full of great schemes for the solution of the problem of automatic stability. However, difficulties of building cropped up, and with the true American characteristic of desiring to see practical results, he built a Demoiselle type machine in October, 1910, and fitted it with a two-cylinder Darracq engine. On this he made several flights, and somersaults, which eventually smashed the machine up for good. In the spring of 1911, he joined the Wright's Flying School at Dayton, and there, under the training of Mr. Orville Wright and the late A. L. Welch, he took his certificate, No. 41 of the Aero Club of America.

Since then he has flown far and wide in practically every State East of the Mississippi, carrying many distinguished passengers. During 1911 he made and held for some time the world's duration passenger-carrying records with one passenger, and the American duration records for one, two, three, four and five passengers, and also the altitude record with one passenger.

1912 was devoted to the running of a successful school at Nassau Boulevard and Hempstead Plains. During this time, sixteen pupils were trained by him personally, and took their certificates without a single breakage to the machine or injury to any of the pupils. None of them since has ever met with a single accident, which with the amount of flying they have done speaks for the thoroughness of the training. During the whole of last summer Mr. Beatty was busy demonstrating on a Wright biplane with a Gyro motor in this country. Those who saw him flying enjoyed the spectacular banking in which Mr. Beatty indulged.



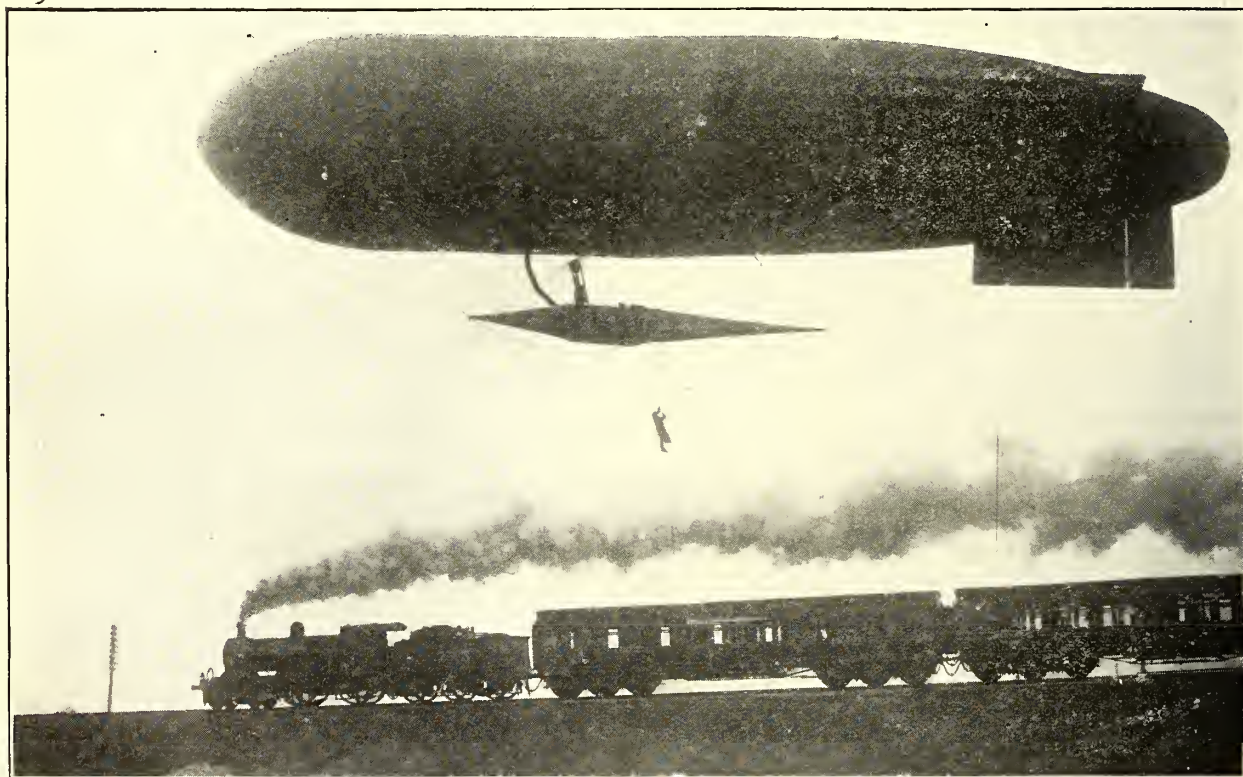
Photograph of Brooklands Aerodrome taken from a Sopwith biplane at 2,000 feet.

New Companies.

The Sopwith Aviation Co., Ltd.—Registered with a capital of £26,000 in £1 shares (6,000 6 per cent. cum. pref.). Objects: To acquire the business now carried on at Kingston-on-Thames and at Brooklands, under the style of "The Sopwith Aviation Company," and to carry on the business indicated by the title. First directors: Thomas O. M. Sopwith, Reginald O. Cary and Gertrude May Sopwith. Qualification: £1,000. Remuneration: £50 each per annum. Registered office: Canbury Park Road, Kingston-on-Thames. Private company.

Flying at Hendon.

ERRATUM.—THE AEROPLANE, March 5th, 1914, p. 240, Col. 1, Par. 5, line 3, for first four words read "person unknown." Line 4, for 3rd and 4th words read "another person unknown."



How Kinema Films are Made.—A gymnast descending from the Willows Airship to the neighbourhood of a Midland train at Hendon—without the collusion of the driver. The only "take" is that some sky is cut out between the airship and the train. In the rest of the film the gymnast eventually alights on another train from another airship.

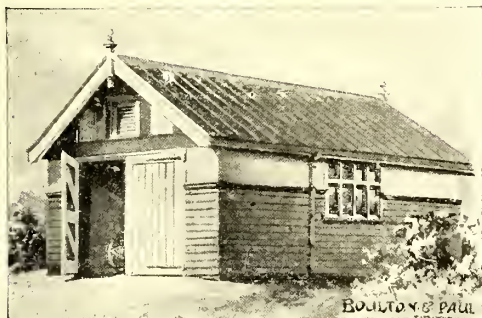
DOPE WITH NOVAVIA

9, Coral Street, W.C.

THE DOPE

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR HOUSES, CYCLE HOUSES.

GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

One Moment—Mr. Aviator!

Just reflect how easily little mishaps occur. Be prepared. You can dress wounds promptly and properly by means of this pocket outfit of bandages, etc.



Burroughs Wellcome & Co., London

'TABLOID'
TRADE MARK BRAND
FIRST-AID
No. 706 (Aviator's)

Price, 1/6. All Chemists

PRACTICAL BOOKS on FLYING

Just Published. 180 Pages, with Diagrams. Large Crown 8vo. 3s. 6d. net.

THE AVIATION POCKET BOOK FOR 1914.

Containing, amongst other valuable information, the Theory and Design of the Aeroplane, Structural Material, Examples of Actual Machines, etc., etc. By R. BOKLASE MATTHEWS, A.M.I.C.E., M.I.E.E., Member of the A. & C. Club

THE ART OF AVIATION.

A Handbook upon Aeroplanes and their Engines, with Notes upon Propellers. By R. W. A. BREWER, A.M.I.C.E., M.I.E.E., etc. Popular Edition. 291 Pages. 95 Illustrations and Dimensioned Drawings. Demy 8vo, cloth. 5s. net.

AERIAL NAVIGATION.

A Practical Handbook on the Construction of Dirigible Balloons, Aerostats, Aeroplanes and Airships. By F. WALKER. Second Edition, thoroughly revised and enlarged. 176 Pages. 128 Illustrations. Crown 8vo, cloth. 5s. net.

MODEL BALLOONS AND FLYING MACHINES.

With a Short Account of the Progress of Aviation. By J. H. ALEXANDER, M.B. A.I.E.E. 136 Pages. 46 Illustrations and Working Drawings. Crown 8vo, cloth. 3s. 6d. net.

PRACTICAL AERONAUTICS.

An Understandable Presentation of interesting and Essential Facts in Aeronautical Science. By CHARLES B. HAYWARD, with Introduction by ORVILLE WRIGHT. 750 Pages. 310 Illustrations. 15s. net.

FLYING MACHINES OF TO-DAY.

By WM. DUANE ENNIS. 218 Pages. 123 Illustrations. Large crown 8vo, cloth. 6s. net.

THE ABOVE BOOKS MAY BE INSPECTED ON "THE AEROPLANE" STAND No. 110, AT OLYMPIA.

Complete List, Post Free, from

London: CROSBY LOCKWOOD & SON,
7, Stationers' Hall Court, E.C. and 5, Broadway, Westminster, S.W.

DEPERDUSSIN MONOPLANES.

THE BRITISH DEPERDUSSIN AEROPLANE Co., Ltd. (in liquidation) has for sale a number of Monoplanes in excellent condition, including the large "Monocoque" exhibited at Olympia last year, and the 2-seater Monoplane (1.0 h.p. Anzani) so successfully flown by Lt. Porte, R.N., in various races. All these machines, which are now at the London Aerodrome, Hendon, will be shortly disposed of by tender, unless privately sold separately. For full particulars address:

Receiver and Manager, British Deperdussin Aeroplane Co., Glun House, Surrey St., Strand, W.C.

MOTOR AND AVIATION ADVERTISING SCHEMES A SPECIALITY.



ERNEST B. H. LANDER
ARTIST & DESIGNER
13 SPENCER ROAD, WANDSWORTH COMMON
LONDON S.W.

POSTERS · SHOWCARDS · CATALOGUES
PRESS ADVERTISEMENTS



THE FUNNIEST BOOK ON AVIATION.

"LIGHTER THAN AIR"

OR THE AVIATORS GUYED

Of all Booksellers, or direct from THE AEROPLANE, 166 Piccadilly. Post free 1s. 2d.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Week's Work.

Weather Report for Week Ending March 8th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands	Windy	Windy	Imposs.	Imposs.	Imposs.	Imposs.	—
Caishot	Fine	Fair	Wind	Fine	Wind	Fine	—
Eastchurch	Fai	Calm	Wet	Wet	Half	Calm	Typh'n
Hendon	Fair	Wet	Wind	Wet	Gale	Calm	—
Montrose	Stormy	Rain	Dull	Dull	Gale	Gale	Rain
Salisbury Plain	Imposs.	Imposs.	Imposs.	Imposs.	Imposs.	Imposs.	—
Shoreham	Wind	Fair	Wind	Wet	Wind	Wind	Wet
				Wind			Wind

School Reports.

Hendon.—At GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Birchenough and Cripps. Pupils with instructor on machine: Messrs. Dunne, Kershaw, Cowley, Moore, Tapps, Parker, and Prince Sapieha. Strts alone: Messrs. Francis, Kershaw, Lt Lindop. 8's or circles alone: Messrs. Barrs, Kershaw, Norris, and Lt Lindop. Certificate taken: Mr. Barrs. Machines in use: Grahame-White school biplane; Blériot mono.

At W. H. EWEN SCHOOL: Instructors during week: Messrs. F. W. Goodden and W. T. Warren. Pupils strts or rolls alone: Messrs. Garvin, Wigget, and Carruthers. Circs alone: Messrs. Murray and J. Bankes-Price. Machines in use: 35-h.p. Caudron biplanes.

At HALL SCHOOL.—Instructor during week: Mr. J. L. Hall. Pupils: Messrs. Virgilio, H. Gering, E. Palmer. 3 strts. ½ circs. alone. Messrs. Gering, Virgilio one each. Machines in use: 2 Caudron, 1 Avro, tractor biplanes, 1 Blériot mono. Owing to heavy rains school work temporarily at an end, hangars flooded. On Saturday, Mr. J. L. Hall gave exhibition flights in afternoon, and took passengers on Avro.

Brooklands.—At VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight, and Elsdon. Pupils, with instructor on machine, Mr. Wilberforce (4), Lt Mansergh (4), Lt Leighton (2), biplane. Machines in use: Propeller biplanes, two. Mr. Barnwell with passengers on gun-carrying biplane.

At BRISTOL SCHOOL: Instructors during week: Mr. Halford. Pupil with instructor on machine: Sgt Deane (8). Machines in use: Two school biplanes.

At SUNBEAM Co., pilot Mr. Alcock, one flight with passenger at 1,500 ft on Monday. On Tuesday to Eastchurch with Mr. F. G. Clifton as passenger at 6,000 ft in 40 mins after passing a snowstorm. Afterwards to Margate and back, running out of petrol en route, near Whitstable. Machine: Maurice Farman (100-h.p. Sunbeam).

Eastchurch.—On Saturday the Hon. Maurice Egerton out on his Short (50 Gnome), and Professor Huntington out at 700 ft making circuit.

Shoreham.—At PASHLEY SCHOOL: Instructor during week: Mr. C. L. Pashley. Pupil with instructor on machine: Mr. A. D. Gray (taking control in strong wind on Tuesday). Machine in use: Farman type biplane.

Salisbury Plain (BRISTOL SCHOOL).—Weather during entire week prevented tuition.

Hewlett and Blondeau Progress.

A visit to the Hewlett and Blondeau firm reveals much activity, the B.E.s on order being in a remarkably advanced state, considering the recent date of the order. The firm has laid down special jigs and tools for the accurate production of B.E. parts with such success that of all the B.E.'s they have produced to date very few parts have been rejected by the Government inspectors, a record which will be appreciated by those who know what B.E. parts are and what the R.A.F. inspection was.

They have in addition a considerable amount of metal work in hand for various constructors. The excellence of their work is well known, and they can be confidently recommended to anyone requiring the accurate production of complicated metal parts, particularly where welding is required.

Trade Note.

It will be well to contradict the rumour that, following a recent statement of Mr. Whittaker's as to French airships having nowhere to rest their bags at night, a prominent English firm has approached the French Government with a view to supplying the dirigible branch of the "fifth arm" with their celebrated trouser-presses in extra-large sizes.

An Unqualified Denial.

We are asked to deny the rumour that the spars of the two B.E. biplanes built by the Royal Aircraft Factory for the Naval Wing, R.F.C., have been sold to a large toy manufacturer who requires well knotted timber for the construction of toy animals. As a matter of fact, the machines were simply returned to the makers, after tests had been made as to the important part played by the fabric in maintaining the shape of the wings.

Dope for Models.

Cellon, Ltd., have placed with J. Bonn and Co., Ltd., the sole agency for the sale of Cellon for model aeroplanes, and all inquiries respecting this well-known dope for models should now be addressed to J. Bonn and Co., Ltd., 97, New Oxford Street, W.C. Cellon, Ltd., are now making up a new solution for this purpose, which is specially suitable for model work and is known as Cellon No. 14.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situation Wanted ONLY—18 words 1/- 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS.—How to Patent Inventions. Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

W. H. EWEN SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION Co., London Aerodrome, N.W.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work. £50. Passenger flights from £2 2s.

PASHLEY BROTHERS, SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

(See page 285.)

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from **THE SHOREHAM FLYING SCHOOL**, Shoreham Aerodrome, Sussex.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY**, Leeds.

VERY CHEAP.—Aeroplane propeller by Lascelles "Weiss"; absolutely new and in perfect condition. Particulars from **N. GIBBS**, "Gotha," Morden Hill, Blackheath.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.**, 1, Queen Victoria Street, London. Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE**, 166 Piccadilly, W.

EMPLOYMENT.

YOUTH (17), just left public school, desires appointment with aeronautical firm; excellent knowledge of aeroplane design and construction; willing to learn and work hard.—Box 540, **THE AEROPLANE**, 166, Piccadilly, W.

YOUNG man (22) seeks situation with aeroplane company; greatly interested in aviation since commencement; willing to learn and not afraid of work.—E. W., c/o E. CLARK, 49, Boxley Road, Maidstone, Kent.

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—**WULFFING**, Aeronautical Engineer, 2, Barclay Road, Walham Green Station.

WOODWORKER and coverer, experienced; read drawings; used to Government work, construction, erecting and wiring; distance no object; good references.—Box 538, c/o **THE AEROPLANE**, 166, Piccadilly, W.

YOUNG man (18) seeks employment with aeroplane company; willing to learn.—Box 539, **THE AEROPLANE**, 166, Piccadilly, W.

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD.**, Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD.**, 130, Hackney Road. Phone 4770 Wall.

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1'6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MONOPLANE, size 31 inches by 24 inches. Price 5s. Flights of nearly a 1/4-mile have been obtained with this model. Set of parts, with drawings for building above model, 2s. 6d.—**MURRAY, SON & CO.**, 387a, High Road, High Cross, Tottenham, N.

LONG distance monoplane, 38 in. by 24 in., 7s. 6d., guaranteed. Wire planes made to sketches, 1s. 6d. sq. ft. A. Frames varnished and strained, 1 ft. 6 in., 9d.; 2 ft., 1s.; 2 ft. 6 in., 1s. 3d.; 3 ft., 1s. 6d. Bent propellers, 6 in., 6d.; 7 in., 8d.; 9 in., 9d.; 10 in., 1s. pair. Carved, 1 1/2 d., 1 in. Silk, 36 in. by 12 in., 1s. 3d. Bearings, 2d. pair. Postage extra.—**WOOLWICH AERO CO.**, Eton Road, Woolwich.

FOR SALE.—Bound volumes, "Flight," I-IV; "The Aero," I-VI; "Aeroplane," I-IV; absolutely unsoiled. Also scale model Henry Farman, one-twelfth full size, beautiful construction; suitable R.F.C. mess. Highest offer accepted.—"DÆDALUS," 15 Arlington Road, Surbiton.

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

Phone: Kingston 869.

The Pioneer Aeronautical Model and Accessory Manufacturers supply everything for the Model Aeroplane. Our **New Illustrated Models Catalogue** now ready. Contains **Sopwith Tractor, Deperdussin, Bleriot, Canard, Clarke Mono**, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection. 2d. per 1 in.; Elastic 100 per doz. 10d.

S. J. KEMP & Co.,

CROWN WORKS, Kingston-on-Thames.

(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)

Every Requisite for Model Aeroplanes. Send 1d. for List.

Models of Every Description built promptly.

Phone 321 Kingston.

Telegrams "Garage, Kingston-on-Thames."

COMBINED DEMONSTRATIONS OF
“LOOPING THE LOOP”
AT HENDON.

By **Mr. B. C. HUCKS** and **Mr. GUSTAV HAMEL**

On **THURSDAY, MARCH 12th** and **SATURDAY, MARCH 14th,**
 from **3.30 p.m. to 5.30 p.m.**

(Weather permitting)

ADMISSION 6d., 1s., 2s. 6d. and 5s.
 (Children Half Price)

MOTORS 2s. 6d. and 5s.
 (Includes Chauffeur)

WINTERSEASON—RACES EVERY SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

PASSENGER FLIGHTS DAILY FROM £2 2 0.

The London Aerodrome, Hendon

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: 'Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."
LONDON: 166, Piccadilly, W. 'Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."

COMING EVENTS.

Thur., Mar. 19th. **DESOUTTER BENEFIT MEETING.**

Sat., March 21st. **AERO SHOW SPEED CONTEST.** ("Shell Trophy.")

Sat., March 28th. **SPRING MEETING.**

GRAHAME-WHITE
AEROPLANES
and HYDRO-AEROPLANES

STAND
No.

40

OLYMPIA
AERO
SHOW

WINNERS OF
THE BRITISH MICHELIN TROPHY, 1913
AND HOLDERS OF
WORLD'S RECORD
 (PILOT AND **NINE** PASSENGERS)

Illustrated Catalogue on application.

THE GRAHAME-WHITE AVIATION CO., LTD.
THE LONDON AERODROME, HENDON, N.W.
 Telephones: 120 KINGSBURY 4 lines. Telegrams: VOLPLANE, HYDE, LONDON
 London Offices: 166, PICCADILLY, W.
 Telephone No.: 5955 MAYFAIR. Telegrams: CLAUDIGRAM, PICCY., LONDON

"THE AEROPLANE," MARCH 19, 1914.

THE FIRST SHOW REPORT. (60 Pages).

THE AEROPLANE

Edited by CHAS. G. GREY. ("Aero-Amateur")



VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, MARCH 19, 1914

No. 12

OLYMPIA, MARCH 16th, 1914.



A General View of the Fifth International Aero Show, a truly international event, with British and French Aeroplanes, and British, French, German, Austrian and American Motors.

NIEUPORT (ENGLAND) LTD.

See at STAND 65
(OLYMPIA SHOW)

60 h.p. SINGLE-SEATER SCOUT

AS USED BY THE FRENCH ARMY

100 h.p. SEAPLANE

AS USED BY THE FRENCH NAVY

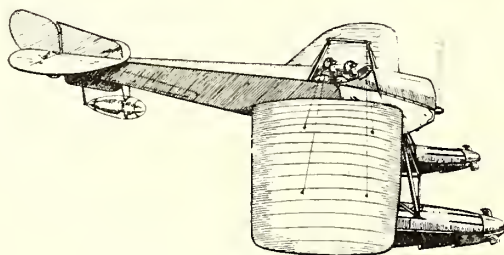
Same type as the two machines flown in the
MEDITERRANEAN CROSSING
(12th MARCH, 1914)

ST. RAPHAEL to AJACCIO (CORSICA)

By Cr. de l'ESCAILLES and Cr. DESTREM
OF THE FRENCH NAVY

160 Miles in 2 hours 45 mins.

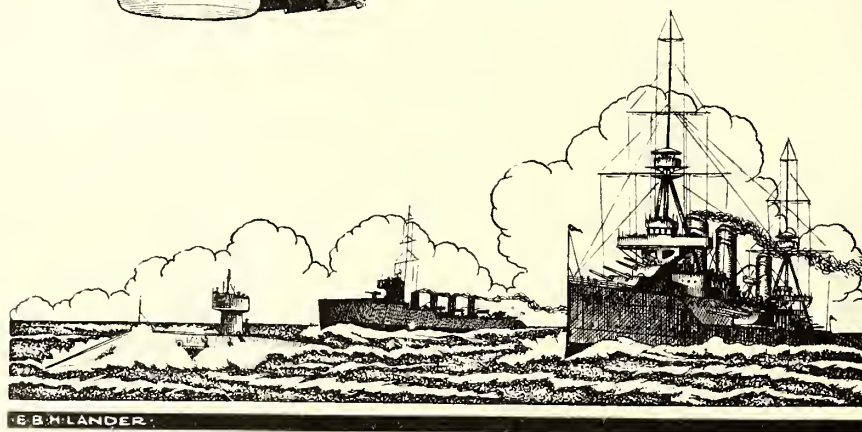
100 h.p. SKIMMERS
for use in Shallow Water



Address all enquiries to the
Managing Director:

MR. ALBERT PICARD,
45, Gt. Marlborough Street,
LONDON, W.

Telegrams: "Nieuplane, London."
Telephone: Regent 5210 (2 lines).



The Eyes of the Fleet

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all newsagents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

THE OPENING OF THE AERO SHOW.

The fifth Aero Show held by the Society of Motor Manufacturers and Traders, under the auspices of the Royal Aero Club, opened on Monday last. Before the Show was opened to the public it was honoured by a visit from the King, who, as usual, displayed not only a keen interest in the exhibits, but showed a knowledge of aviation which one wishes extended to all the senior officers of his Services.

One noted with extreme regret the flagrant discourtesy of one exhibitor, a member of the Royal Aero Club, who deliberately remained covered while speaking to His Majesty, and one hopes that further notice will be taken of the incident.

After the King's departure the usual inaugural lunch was held, with the chairman of the S.M.M. and T., Mr. S. F. Edge, in the chair. Lord Tullibardine, chairman of the Royal Aero Club, proposing the toast of British Aviation, thanked the Society of Motor Manufacturers and Traders for the service done by them to British aviation in holding the Show. He said that the amazing progress of the last seven years was due to the motors. Aeroplanes now were in advance of the motors, and it was again the turn of the motor to advance.

The pilots of aeroplanes were being tested as the pioneers never expected them to be. He said that there was no degeneracy in the British race so long as pilots came forward as they did to take the place of those who fell.

General Henderson, in replying, regretted the absence of Colonel Sykes and his squadron commanders, who were to-day paying their last respects to certain of their comrades.

It was a sign of the times that the reply to this toast had to be spoken by soldiers and sailors. The science of aviation must advance along many lines, but the Services were necessarily cramped in their selection of designs, and so many thought they did not give enough encouragement along other lines, but their duty was primarily that of defence rather than the development of aviation, though he asked whether the progress showed to-day was not in a measure due to the requirements of the Services—a sentiment with which everyone will cordially agree. The better the machines, the better the chance a maker had of selling them.

The Army was now trying to help by giving information as to what was wanted, and makers could go as far in advance of the published tests as they like. The engines did not yet show the advance required, but there was now every prospect of having what was wanted of British manufacture. The Army did not want one record breaking engine to fly 24 hours, they wanted all engines always to fly for three hours.

No other country had advanced so much in aviation in the past year as this country, and we now had better machines for military purposes than any other.

Captain Godfrey Paine, R.N., replying to the same toast, said that there were no better aeroplanes than British machines, and no better pilots. Some people expected perfection in five minutes, and they could not have it. Submarines were not developed in a year. He thought that good pilots

were now in advance of their machines. A good pilot did not want a fool-proof machine, and a bad pilot had better give up flying. Reliable engines were more necessary in seaplanes, for a land flier could always find a good Samaritan to house him, whereas the position of a seaplane pilot adrift in a choppy sea was not at all alluring. He knew that the ardour and zeal of those concerned with aviation was not damped by recent accidents.

Mr. Joynson Hicks, M.P., proposing the toast of The Exhibition, said that he wished to associate himself with the previous speakers in their tribute to those who had fallen. Referring to engines, he said that the makers should resolve to excel all foreign competitors. Aeroplanes would make vast alterations in the pleasures of life as well as in the grim business of war. Who would be so foolish as to set a limit on the developments of the future?

Mr. S. F. Edge, replying, remarked on the great encouragement it was to all to see the King's interest in flying. Mr. Edge said that he had been trying to find out the difficulties of the trade, and undoubtedly there were many. The early success of the motor trade was due to the fact that each buyer could not compare notes with the others and so thought that his own troubles were the worst, otherwise people would not have gone on buying the early motor cars, but as the Services were the only users of aeroplanes, all the buyers knew the faults of every machine.

He appealed to Government Departments to give out small orders which would keep works going, and keep trained men together, so that they could build the ultimate best types when they were evolved. He also suggested, as has often been suggested in this paper, that if Service aviators were allowed to compete in public competitions with civilians, it would stir up public interest and encourage the better class civilians to take up flying as a sport—one may add that it would also make it easier for the Services to obtain money for development. He said that if small engine firms were encouraged with orders they would be able to find someone who knew no better to put up money with which they could make improvements.

He remarked that pilots of aeroplanes should be of a sufficiently mechanical bent to know when their engines were being maltreated. He also appealed for a revision of the prohibited areas, and instanced the hindrance to the aeroplane industry on Southampton Water owing to the prohibition of flying over certain parts. He hoped that a British machine would win the Gordon-Bennett race, as it would certainly bring buyers from other countries here.

After the inaugural lunch, the Show was thrown open to the public, and there was quite a respectable attendance during the afternoon, and one hopes that it will be greatly increased in the remaining week during which the Show remains open.

Hereafter follows a comprehensive description of the various exhibits. Next week it is proposed to deal with constructional details of the machines, and to describe the various accessories and components which are exhibited at Olympia.—C. G. G.

The Aeroplanes at Olympia.

THE AIRCRAFT MANUFACTURING CO.,

47, Victoria Street, S.W.

The Maurice Farman standard (70-h.p. Renault) of the latest type differs from the earlier model in the absence of a front elevator, the raising of the nacelle above the lower plane and in having a monoplane tail. The main planes remain the same, having a greater span to the top plane than the bottom, the extensions being supported by steel tube struts. Top and bottom planes are fitted with balanced ailerons. The interplane struts are of the split, hollowed, and bound spruce type always used in this mark, except the struts supporting the nacelle, which are solid and cross-braced between the nacelle and the bottom plane by steel tubing. All lift wires are stranded cables.

The wheel-base remains as before, with the exception that the outriggers, which used to run to the front elevator booms, are amputated. In line with the wheel-base units are the tail booms, which, owing to the great span of the tail plane, are now parallel in plan view, and must therefore offer less head resistance than converging ones. In side elevation they converge to meet at the rear edge of the tail plane, and each set carries a tail skid below and a rudder above. The nacelle and power plant are altered only in position, being midway between the planes. Controls are of normal type with the well-known Maurice Farman "spade-handle" lever for ailerons.

The Henri Farman seaplane (80-h.p. Gnome) is a standard Henri Farman on floats. This type may be regarded as the prototype of all modern "pusher" biplanes and will in its general features be familiar to all readers of *THE AEROPLANE*. The characteristic feature of the lifting surfaces is the great overhang of the upper plane, this overhang being supported by bracing from cabanes above the outer pairs of interplane struts, the lift when flying being carried by bracing wires.

The leading edge of both planes sweep back somewhat, the trailing edges being normal to the centre line. Balanced ailerons are fitted to the top plane only. The interplane struts are of similar construction to those in the Maurice Farman already described. Between the two centre interplane struts and upon the lower plane is the nacelle, carrying at the rear an overhung 80-h.p. Gnome and a Rouzet wireless generator and transformer (which will be described in a later issue), and pilot and passenger accommodation.

Four tail booms of steel tube spring from the rear spars of

the planes, meeting in a vertical steel tube at the rear which forms the rudder post, on which is pivoted a large balanced rudder. Above is the fixed tail surface with its divided elevator flaps.

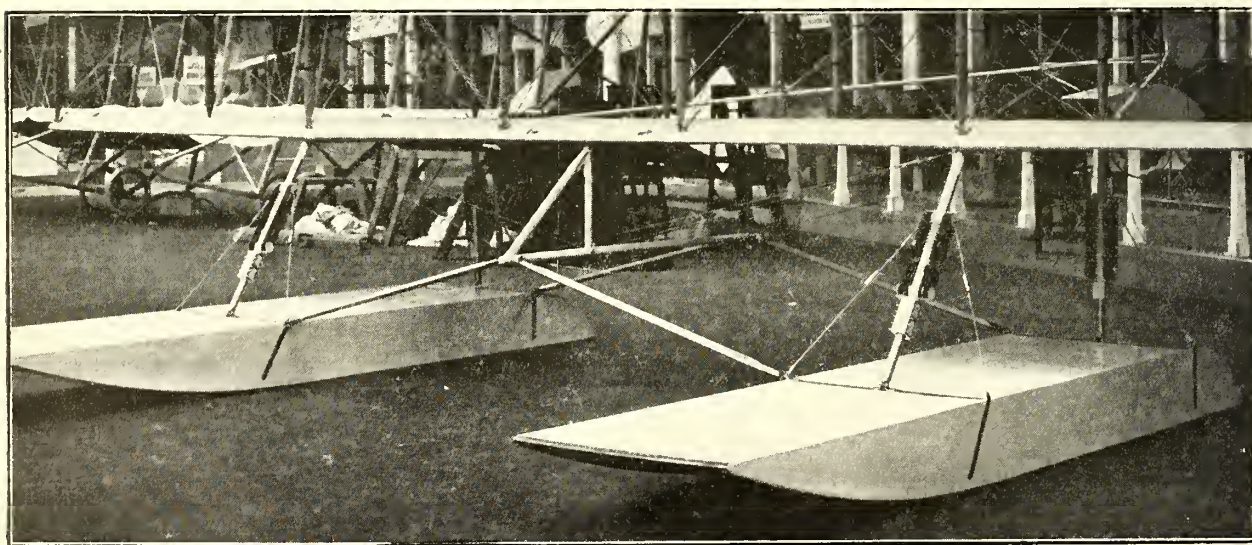
In the same plane as that in which the tail booms meet the planes are the main float struts. Each float (there are two main floats here as in every seaplane other than flying boats exhibited at Olympia) is supported by two telescopic rubber-sprung struts originating under the front and rear wing spars respectively, universally jointed at each end, which end on the centre line of the float. Abreast of each such support a universally jointed tube ties the float to a longitudinal horizontal tube, held under the centre line of the machine by three struts and wire bracing. Owing to the universal jointing of all the struts to the floats and to springs inserted in the wiring, the floats are able to wobble to any shock. The floats themselves are of the plain unstepped pontoon type. Under the rudder a large trailing float is fitted.

Both Maurice and Henri Farman machines were built throughout at the Hendon works of the Aircraft Company, and their finish is worthy of the Farman reputation. As to the air-worthiness of the machines themselves, the innumerable noteworthy flights made on both marks and their immunity from accidents traceable to the machines themselves are matters of common knowledge and form the best possible tribute to their merits.

N. PEMBERTON BILLING, Woolston, Southampton.

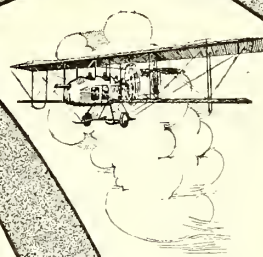
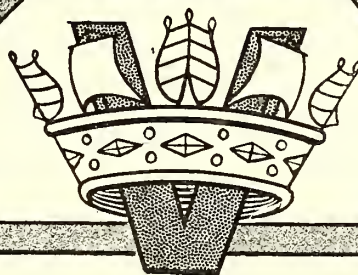
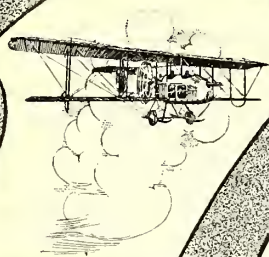
Mr. Pemberton Billing's Supermarine P.B.1, a novel species of flying-boat, showing a multitude of new features. The body or hull proper is a cigar-shaped structure built racing-boat fashion of various diagonal skins on longitudinals and former ribs. At the bows on each side is a sort of flat fin which, sloping slightly downwards and backwards, widens as it progresses till the two fin surfaces meet at the bottom of the hull about amidships. Slightly aft of their formation into a single one-domed surface these united fins stop short, forming a hydroplane step, and the hull reverts to its circular section. Just aft of this step the hull is cut out on the top to form the pilot's cockpit.

At the rear end of the hull are the tail surfaces, which are carried up clear of the water on steel tube struts. This "empennage" consists of a large semi-elliptic fixed plane with two semi-circular elevators hinged thereto, a fixed vertical fin of



All the photographs of exhibits at Olympia are by F. N. Birkett, Percy Road, Shepherd's Bush, from whom copies may be obtained.

The sprung floats of the Henri Farman seaplane (80 Gnome) shown on the Aircraft Manufacturing Co.'s Stand.



LEARN TO FLY

AT THE

VICKERS FLYING SCHOOL, BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

STAND No. 66,
Aero Exhibition, Olympia.

VICKERS Limited,

Aviation Dept., Vickers House,
Broadway, Westminster, S.W.



VICKERS Flying School,
Brooklands.

approximately triangular form and a half-heart-shaped rudder, both above the elevators.

Just ahead of the pilot's seat, with its trailing edge in line with the front of the cockpit, the bottom planes of a staggered set of biplane wings join the hull. These wings are of a section reminiscent of the Blériot camber and are of quite small span (30 ft. top and 28 ft. bottom). Interplane struts of silver spruce of a pleasingly deep streamline section and bracing wires in the usual arrangement, complete the biplane structure. Here, as in practically every other case at Olympia, stranded cable is used throughout for lift wires, and all joints in these wires are well-made splices. Each top plane is fitted with a pair of balanced ailerons, and the controls are operated by the ordinary single lever and rudder bar control.

The motor (a 50-h.p. Gnome) is carried on a pear-shaped aluminium case, which is mounted on 4 uprights above the bows of the hull, with its axis inclined upwards, in order to compensate the effect of placing the line of propeller thrust above the centre of head resistance. The effect of this weird engine placing is somewhat problematical. Provision has, however, been made in this machine (the first of its type) to vary the slope of the propeller axis, so that the correct position may be determined experimentally.

To the bows of the hull is fitted a grapple, whose shank fits into a tube in the hull and is provided with a spring ejecting gear, the requisite cable and a small winch, which is accessible from the pilot's seat, whereby the pilot may anchor or hoist anchor without outside assistance, are all handily stowed. The boat is also fitted with the Billing's supermeter, referred to last week and to be described in a later issue.

The workmanship throughout is good and the finish expensive, and despite the many novelties incorporated in the design, the general impression given is of a really earnest attempt to produce a waterproof boat and persuade it into the air.

THE BLACKBURN AEROPLANE CO.,
Balm Road, Leeds.

The Blackburn Aeroplane Company of Leeds show the only British built and designed monoplane in the Show. Those who remember the early experimental machines of Mr. Blackburn, which certainly flew well, will at once recognise the advance he has made in the last year or so. There is a pleasing something about the forward part of the machine which suggests German influence in the design. This is probably due to the aluminium casing of the body being brought back level with the top of the engine cowl, and the way in which the two cockpits for the pilot and passenger are cut out of the casing. The old triangular fuselage remains, but the flat top now has a streamline casing over it which merges into

the tail-plane. The chassis struts are good stout pieces of timber, adequately braced, and joined to the skids by healthy-looking steel clips. To these the wing cables are secured, and although the practice of anchoring wing cables to the chassis is not approved by the military authorities for quite good reasons, the practice is quite safe when the pilot looks after his own machine, or when he has mechanics on whom he may absolutely rely.

The chief danger in anchoring the wing wires to the chassis is that the pilot may crack a chassis strut in a rough landing, and go up again without stopping, and so long as due care is taken there seems to be very little possible objection to fixing the cables in this way, and it certainly enables the designer to reduce head resistance by doing away with two extra pylons for the warp wires, and the front spar cables.

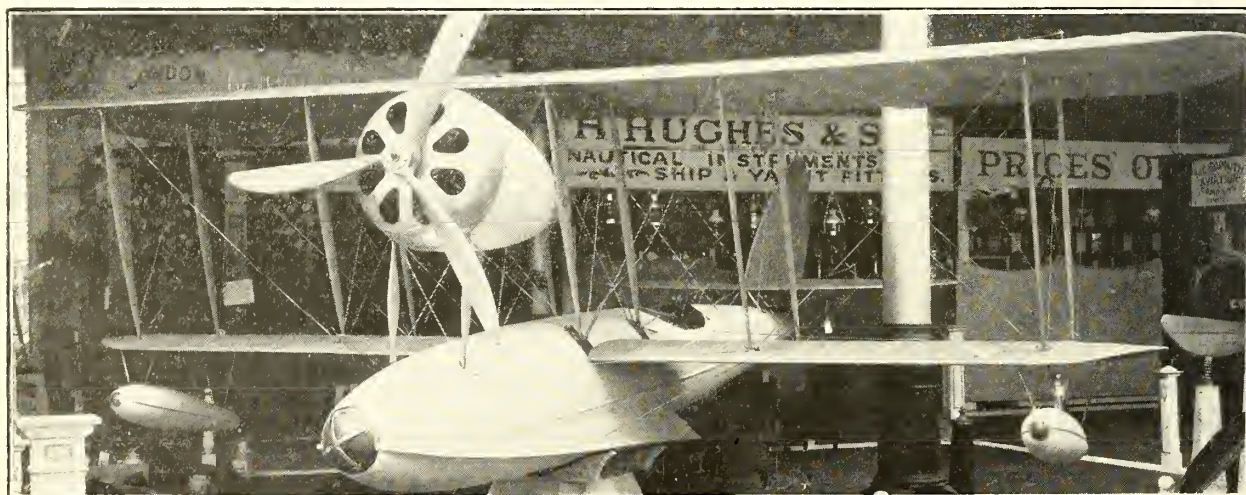
Stranded cable is used for the rudder and elevator controls, as well as for the wings. The main spars are of ample size, the front one being $2\frac{3}{4}$ by $1\frac{1}{2}$ inch, and the rear spar $2\frac{1}{2}$ by $1\frac{1}{2}$ inch. The rear spar fits into a socket on the fuselage, where it is held by a pin, and there seems very little chance of it coming to grief through the joint going wrong. Taking it all round, the machine is a good, solid, workmanlike job, and one hopes that the amount of flying Mr. Harold Blackburn the pilot has done on a similar machine in the North during the past few months will result in Mr. Robert Blackburn the constructor (incidentally, they are no relation to one another) procuring a goodly share of business in the future.

Several excellent examples of Blackburn propellers are shown on the stand, which show that the firm can turn out aeroplane parts with a finish equal to the best.

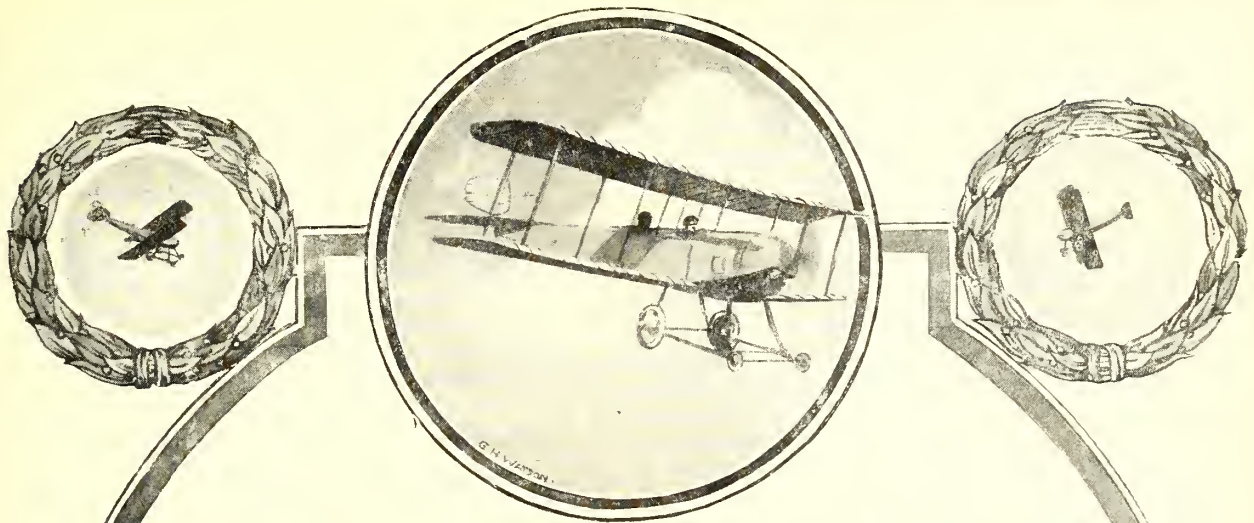
L. BLÉRIOT,
156, Regent Street, W.,
And Brooklands, Weybridge, Surrey.

The "total visibility" type Blériot single-seater (80 Gnome) consists of a standard "type XI bis" fuselage chassis and tail, fitted with wings raised above the fuselage by four ash struts about 1 foot high. The trailing edge of the wings is cut back to the rear spar for about 18 inches on each side of the fuselage, and the centre section of the rear spar is bowed upwards, as is the leading edge in the centre, giving the pilot a clear view ahead under the wings and a view vertically downward on each side of the fuselage. The rear edge of the wing in front of the pilot's head is thoroughly well padded to prevent injury to this important member and a neat transparent wind shield is fitted beneath the wing, which the pilot can easily look round in the event of its being obscured by rain or oil.

The Blériot waterplane (80-h.p. Le Rhone) was described



The Pemberton Billing's "Supermarine."



**THE MOST INTERESTING EXHIBIT
AT OLYMPIA IS**

STAND 43

**THE BRITISH & COLONIAL
AEROPLANE Co., Ltd.**

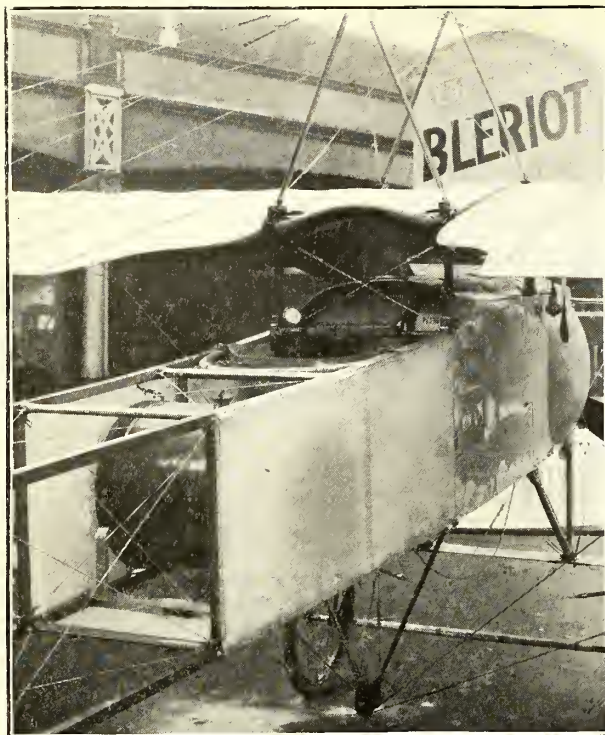
CONTRACTORS TO
THE BRITISH WAR OFFICE AND ADMIRALTY

Also to the Governments of
**RUSSIA, GERMANY, ITALY, SPAIN,
TURKEY, BULGARIA, ROUMANIA,
AUSTRIA, ETC.**



LEARN TO FLY ON THE BRISTOLS
AT THEIR FLYING SCHOOLS AT
SALISBURY AND BROOKLANDS.

THE SAFEST AND MOST UP-TO-DATE SCHOOLS IN THE COUNTRY.



in our Paris Show issue. It is a replica of the "type XI bis" alluded to above, except that the wheel base is some 4 ft. wider. The ordinary Blériot sprung forks are each attached to a pin passing through a clip about half way along a Tellier float. About 2 feet from the front end of each float are fitted a pair of horizontally slotted steel plates (one at each side of the float), and through these, across both floats, passes a steel tube. From the end of the top wheel base "planche" an inverted Y of oval steel tube runs to this cross tube, each end of the Y being forked and embracing the slotted plate on the float itself. Two oval steel tubes also run from the end of the bottom planche to the cross tube, which is thus rigidly fixed to the machine, but which allows the float to move back-

ward and forward with the movement of the rear forks. In a quite short time the whole float fittings may be removed and wheels substituted, when the machine becomes a normal tandem two-seater with a wide wheel base.

The famous Blériot tandem two-seater type XI bis. (80-h.p. Gnome) remains unaltered in any essential feature, the only variation from those already seen in this country being the closing up of the passenger towards the pilot, and that on removing the passenger's seat an additional petrol tank slips into that space, giving fuel capacity for longer flights. All the piping for this tank is permanently fitted and the tank is supplied with the machine. The number of big flights made on this type of machine, and its great popularity with pilots, naval, military and civilian, both here and abroad, is justification for its retention unaltered.

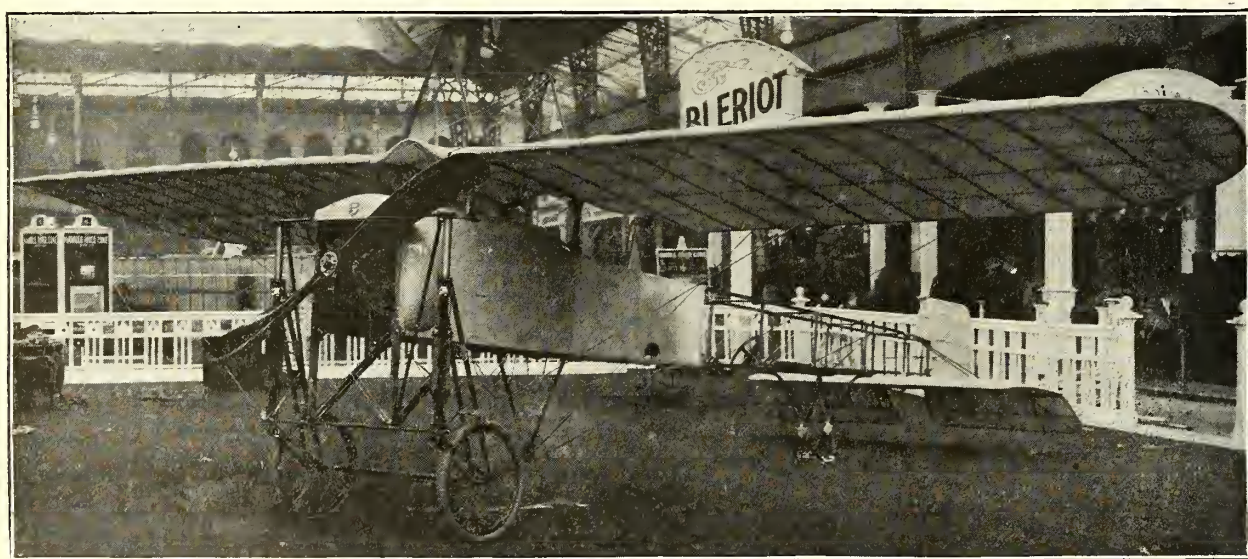
THE BRITISH & COLONIAL AEROPLANE CO., LTD., Filton, Bristol.

The Bristol Co.'s exhibit suggests the famous picture of Dignity and Impudence, consisting, as it does, of a huge two-seater biplane and a tiny scout single-seater.

The scout, which has already been mentioned in this paper, is a tractor biplane of small size, fitted with an 80-h.p. Gnome engine. The fuselage is a tapering box girder with a streamline top, supporting at its rear end a fixed tail plane with a healthy pair of elevators hinged thereto. The rudder is placed between the elevator flaps, and rises well up above the tail, where it extends forward over the tail planes, giving a partially balanced effect. The chassis is of the simplest possible type, consisting of a pair of timber V's connected by a streamlined timber crossbar, immediately in front of which is the steel tube wheel axle. The latter member merely rests in the angles of the "V's" to which it is tied with rubber cord.

The engine is mounted in the front of the fuselage and is overhung. It is almost entirely covered in by a flat-fronted cowl. The wings are of the Phillips' entry type and are heavily staggered. The cellules are cable-braced and fitted with double-acting ailerons. An aluminium plate has been fitted under the aileron hinges in an ingenious manner, thus making it impossible for air to pass between the trailing edge and the flap, and making for increased efficiency.

The pilot is seated well down in the cockpit, two semi-circular pieces being cut out of the walls of the fuselage. A neat device which makes for safety is the fitting of two longitudinal metal-lined troughs for the pilot's heels to slide



The new "Total Visibility" type Blériot shown for the first time at Olympia. Above, the details of the raised and cut-out wings are shown.

**THE
AIRCRAFT COMPANY
LIMITED.**

STAND No. 41

Hold the sole rights direct from the
Farman Brothers for the building of

HENRY & MAURICE FARMAN
Aeroplanes and Hydro-Aeroplanes

In GREAT BRITAIN and the OVERSEA DOMINIONS

Works and Flying Grounds :
HENDON.

Offices : 47, Victoria Street,
WESTMINSTER, S. W.

in, thus making it impossible for his feet to slip off the rudder bar.

The elevator and rudder controls are connected up to a central lever with the double handle on top, as fitted to the early Bristol monoplanes. A pressure tank is fitted behind the pilot's seat in addition to a small tank behind the engine. Altogether the whole machine is a very neatly-designed and constructed job, and although, of course, it is not a machine to be played with by the inexperienced pilot, it is the right thing where a very fast single-seater is required.

The large Bristol "cruiser" is equally impressive in its own way. The chassis, which is the characteristic feature of the Bristol tractors, is too well known to need description, and retains much of its massive proportions, though much reduced in weight. The fuselage is of the usual box girder construction with streamlined top and bottom. There is a handsome polished wood cover to the pilot and passenger's cockpits. A neat footboard runs alongside the body between the planes for the passenger to step onto, thus obviating the unscientific scrambling necessary in so many machines.

The wings, which warp, are of the usual Bristol type, and of great span, and are held apart by ample streamlined struts. The whole cellule is arranged so that it can be dismantled with great speed, the bracing cables being fitted with quick-release clips. The sockets are permanently attached to the struts and are bolted to clips on the wing spars. Cane skids are fitted at the end of the lower planes.

An air-speed indicator is attached to the left outside front strut, the tubes being carried to the cockpit through the inside of the lower plane. Single control is fitted, the pilot's seat being placed aft, but the observer's cockpit is well fitted up with instruments and a map case.

In the front of the fuselage is carried a 100-h.p. monosoupape Gnome, in front of which is fitted a circular wind shield which revolves with the propeller, thus giving the best possible streamline effect. Air for cooling the engine is admitted through louvres in this cowl.

An enormously strong pressed steel box on the end of the fuselage carries the rudder post and the elevator bar. In front of the elevator flap is a smallish fixed tail plane which carries a light load. On top of the fuselage is a fixed fin, well stayed to the tail plane by diagonal steel struts, behind which swings an unbalanced rudder.

To the base of the rudder post a laminated wooden skid is attached, which is fitted at the end with a steel claw. The

whole machine bears an appearance of solidity which should go far to make it popular for military work.

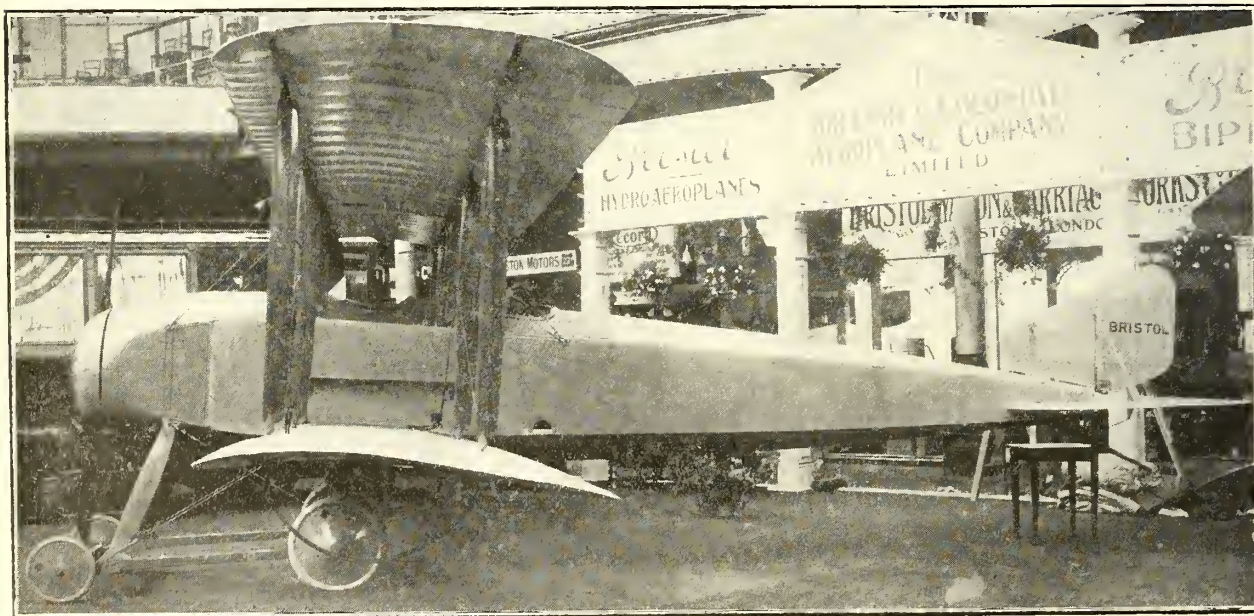
CLEMENT-BAYARD,
C o DelaCombe and Maréchal,
166, Piccadilly, W.

The Clement-Bayard armoured single-seater scout, which is the first of the make yet seen in England, is an example of all steel construction carried out by a competent engineer with a practical experience of aeroplane construction, and is of extreme interest on that account. The machine is of quite small dimensions. The fuselage is of a pentagonal section at the front end and very deep, tapering off and merging into a triangular section behind the seat. In front of the pentagonal part is mounted the motor (that actually fitted is a 70-h.p. Gnome, but a 100-h.p. 9-cylinder is the normal engine of this type), surrounded by an armoured cowl, 3 mm. thick. Steel armour of the same thickness is carried right back over both sides and bottom of the fuselage to the rear of the pilot's seat, and a circular disc of the same material is mounted on the engine shaft within the cowl. The wings are, with the exception of the ribs, entirely of steel, the spars being pressed steel channel section drilled out in the web and the leading and trailing edges being steel pressed to the required section.

At the points of attachment of the wing wires the spars are filled with wood blocks and a steel clip carried right round the spar to take the bracing wires. The whole wing construction strikes one as the best effort at steel wing construction yet made, and the wings are extremely light and flexible. Certain points only are open to criticism: firstly, no provision is made to take the compression between the spars due to the internal bracing other than the ribs themselves, which seem too light for the purpose, and, secondly, the light gauge of steel necessarily used in the spars in so small a machine must be liable to denting from slight external blows.

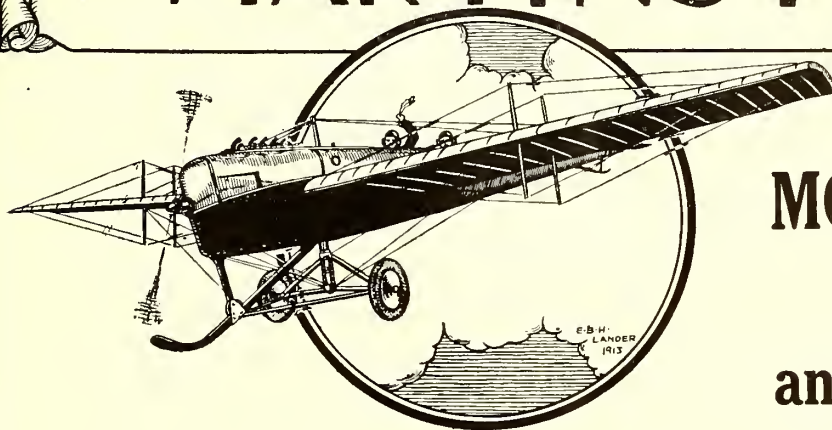
The wheel base is of the no-skid type, now becoming popular for light fast machines, consisting of two steel tube longitudinal V's, one each side, the front legs nearly vertical, tied together at the base by a pair of horizontal tubes between which lies a steel tube axle. This axle is hinged in the centre and fastened to a bridge piece across the two tie-tubes and moves at its outer end in a pair of slotted guide-plates fixed in the angle of the V. Springing is provided by rubber cord suspension.

In spite of having suffered severely from bad packing in



The latest Bristol Tractor with propeller casing. Note the adequate staying of the rudder and tail fin.

The MARTINSYDE



MONOPLANES

and BIPLANES

FOR

HIGHEST QUALITY MATERIAL
BEST CLASS WORKMANSHIP
EASE IN FLYING
COMFORT FOR PASSENGER
AERODYNAMIC EFFICIENCY
SOUND ENGINEERING
INTELLIGENT CONSTRUCTION

Speed range of Monoplane with 120 h.p.

Engine, 40 to 90 miles per hour.

MARTIN & HANDASYDE

BROOKLANDS, WEYBRIDGE, SURREY.

France, and the consequent attack of salt water during its cross-Channel passage, the whole machine has a very smart and well-finished appearance, and one looks forward with great interest to its first appearance in the air in this country.

THE EASTBOURNE AVIATION CO., LTD.,
The Aerodrome, Eastbourne.

The machine shown on this stand is a tractor biplane of standard lines, but showing the very practical acquaintance with the art of aviation possessed by its builders and designers. The fuselage is of rectangular section and streamline form, built with ash longerons, strutted and wire-braced in the normal way. At the front end is fitted an overhung 80-h.p. Gnome, covered and very nearly surrounded by a well-finished cowl.

From the engine back-plate to the rear of the pilot's seat steel tube struts and stays are used. To the nose of the fuselage runs a steel wheel-base of the now so popular two V's (one a side), tied together at the bottom and supporting through rubber cord a single cross-axle. In this case the rear leg of each V is carried through and forward and turned up to form a skid, a difficult piece of tube-bending well carried out.

The pilot's cockpit is very spacious, and though only fitted for one has ample room to accommodate a passenger. The top main planes are supported on a pair of oval tube inverted V-struts, which each span the fuselage, one above the front chassis struts and one above the rear ones. These two V's slope towards each other to meet the plane spars, and there is no centre-section of wing. The spars of the bottom planes project some 9 in. outside the end rib, and are cased in a streamline jacket, the 9-in. gap so left affords the pilot a nearly unimpeded view over the side of the fuselage. The wings themselves, a separate stripped section of which is shown, are built on ash spars and are provided with extra-strong box ribs at each strut line, amply providing for compressions due to drift bracing. These wings are beautifully finished and soundly made. The new Palmer cord aeroplane tyres are fitted.

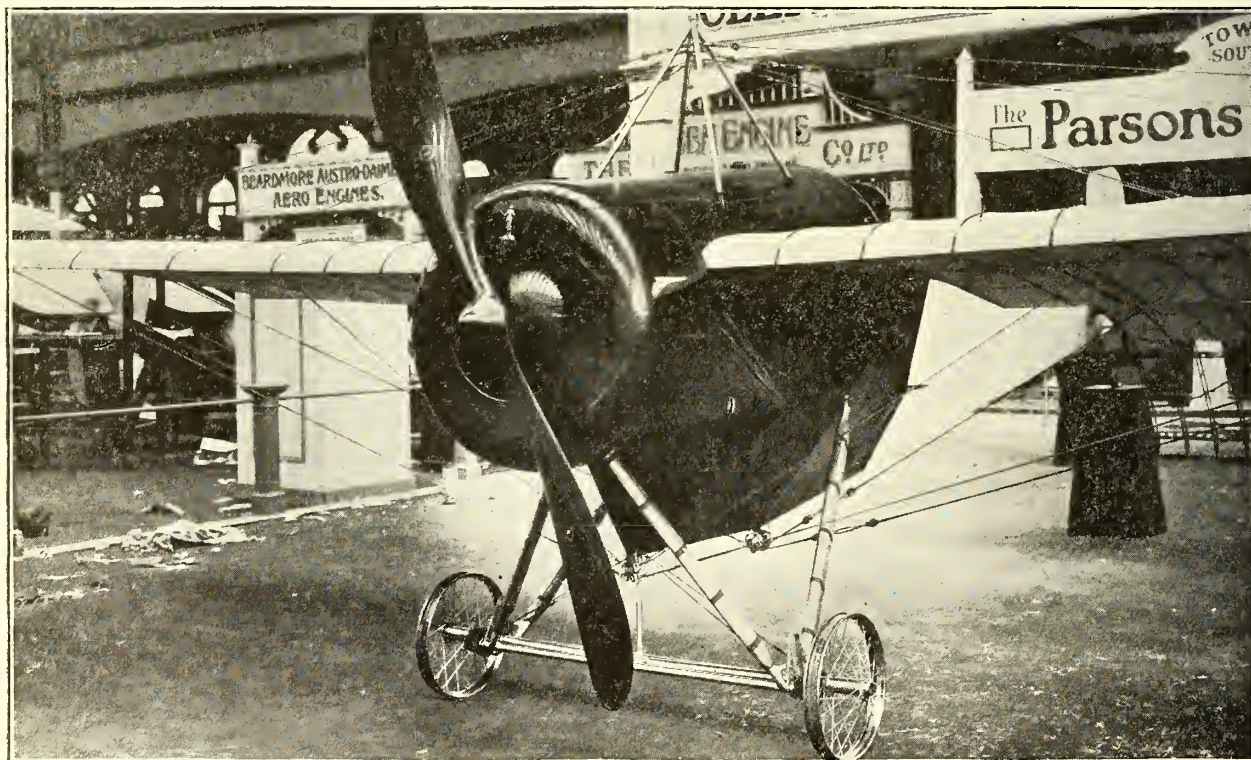
Top and bottom planes are of equal span, and the top plane only is fitted with balanced ailerons. Interplane struts are of

spruce, and the stranded cable bracing is fitted to Binet quick-detachment strainers in ball and socket joints. The workmanship and finish throughout is of the best, and the whole effect of the machine should suffice to establish the reputation of the Eastbourne Aviation Co. as holding a high place among British constructors.

THE GRAHAME-WHITE AVIATION CO., LTD.,
The London Aerodrome, Hendon, N.

The Grahame-White biplanes shown are certain to attract a great deal of attention, and they are well worthy of it. The centre section of the big five-seater, generally known as the char-à-banc, is shown, with her 100-h.p. Green engine, but without the wings, because her huge size would have left no room for anything else on the stand. The machine has been rebuilt since her smash at Folkestone, but much of the material remains and the design is unaltered, so there is very little to say about her, because she has already been described on several occasions. It will be remembered that on this machine, with a 100-h.p. Green, Mr. Reginald Carr won the Michelin Prize, and with a 120-h.p. Austro-Daimler Mr. Noel broke World's Records with 7 and 9 passengers.

The other machine, which is a propeller-driven biplane, is unsurpassed in excellence of workmanship by anything in the Show in fact, the finish is almost too good considering that the machine is intended very much for use. The workmanship throughout reflects the greatest credit on Mr. Law, chief of the Grahame-White constructional department. In its general lay-out the machine is a standard type propeller driven biplane, but in its details it differs from most of its kind. The wings, which are fitted with double acting ailerons to both planes, are swept back sharply from the second set of interplane struts. The centre cellule struts are of steel tube, and the body work is streamlined back to cover the engine. The body itself is of 3-ply wood, the rounded top being built of strips of wood laid over a former and stuck together. The machine is driven by a very large propeller running at 700 r.p.m., which is driven through a double chain by a 100 h.p. Gnome engine. The



The Clément-Bayard monoplane (minus its tyres). Note the steel cowl and shield in front of the engine, and the armour which is carried back to the seat.



D F W

MERCEDES

German Aircraft Works Ltd.

BROOKLANDS AERODROME.

Manufacturers and Concessionaires of ALL the MOST SUCCESSFUL Terrestrial and Hydro-Aeroplanes (Etrich Monoplanes and inherently automatically STABLE "Arrow" type Biplanes), including those which hold

THE WORLD'S RECORDS

FOR

DISTANCE, DURATION, &c., &c.

AND AS SUPPLIED TO THE

BRITISH, GERMAN, AUSTRIAN, RUSSIAN, TURKISH, BULGARIAN, RUMANIAN, CHINESE, South-American and other GOVERNMENTS.

ALL TYPES OF AIRCRAFT MANUFACTURED, from the FASTEST SCOUT to the SLOW, but WEIGHT-CARRYING, LONG DISTANCE SERVICE MACHINE.

IMPORTANT ANNOUNCEMENT.

As all our machines are constructed for WAR PURPOSES ONLY, WE ARE NOT EXHIBITING BY SPECIAL REQUEST, but we shall gladly arrange demonstration flights to Government Officials, Military and Naval Attaches, etc. etc.

BRITISH Schools and EXTENSIVE WORKS NOW in course of Construction.

DEUTSCHE FLUGZEUGE WERKE

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

chassis is entirely of steel tube, and is more or less of the Morane-Saulnier type, the apex of the longitudinal inverted "V's" being joined by two tie-tubes between which is an axle hinged in the middle, and running between guide plates. The bracing of the chassis by stranded cables is particularly worthy of note.

The wheels are fitted with the new Palmer Cord aero tyres, which now make their debut on a British aeroplane, and a very excellent appearance they present. It will be noted that in front of the rudder on this machine there is a fixed tail fin.

The machine is expected to exceed 75 m.p.h., and judging by appearances it should certainly be fast.

HAMBLE RIVER, LUKE & CO., LTD
Hamble, Hants.

Hamble River, Luke and Co., Ltd., show their first effort as aeroplane builders. The making of seaplanes is considered by many to be a boat-builder's job, and the "H. L." biplane strikes one at once as being undoubtedly for use, and not for ornament; not that it is by any means ugly, but simply that everything about it seems originally intended for sea work. The floats are regular boat-building practice, and the body of the machine is likewise built on boat lines. One wing has been left uncovered, which is quite a sound show idea, as it gives one desired information about the structural design. One is glad to see that where the inter-plane struts join the spars, there are healthy steel boxes surrounding the spars themselves, and that between these boxes there are steel tubular compression struts inside the planes to take the pull of the horizontal bracing wires. A notable feature in the wing construction also is the size of the eye-bolts to which the bracing wires are attached. Those on the inner struts, which take the main load, look as if they would do for towing rings for a ship.

The general lay-out of the machine does not depart greatly from standard practice, as it consists simply of a large biplane mounted on two floats. The body is raised a foot or so above the lower plane, and at the back of it is the 6-cylinder 150-h.p. N.A.G. engine, which weighs about 4 lbs. to the horse-power without radiator. Although this is not light, the engine seems

a good sound job, and has a reputation in Germany for reliability, which, after all, is of more value in these days of efficient lifting surfaces than is mere lightness.

The body is carried on steel tubes fixed to stout longitudinal booms, so that none of the weight or driving strain is borne by the struts of the centre cellule. Lateral control is by ailerons which are fitted to the top plane only, and the other controls are by a single flap elevator fitted behind a wide neutral tail, beneath which are two large balanced rudders of sufficient area and sufficiently wide apart to assist the directional stability of the machine. At the bottom of each rudder post is fitted a small torpedo float which swivels with the rudder, and so steers the machine at low speeds on the water.

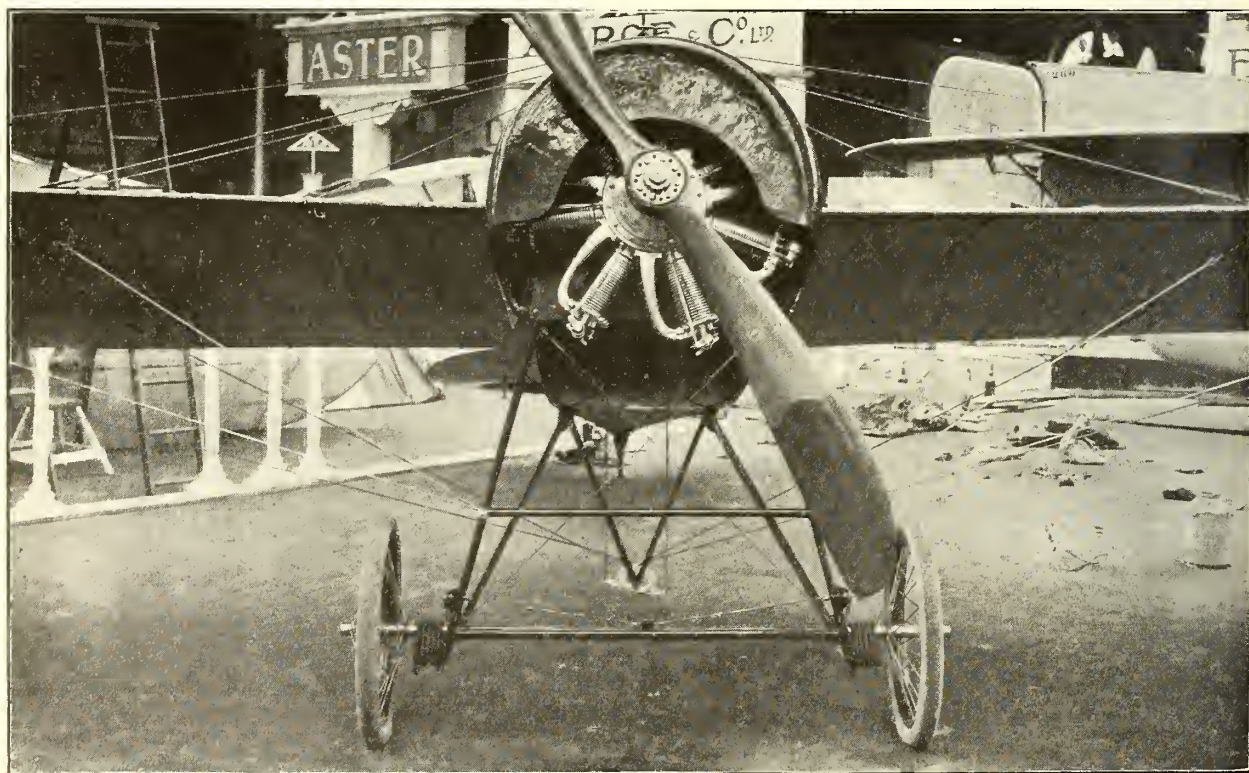
The engine is started by an ordinary starting handle from the passenger's seat.

The machine was not fully finished in time to be assembled before coming to Olympia, and practically all the fitting together was done at Olympia on Sunday, so minor faults in workmanship and finish must be forgiven, for, being a first attempt, the machine cannot be judged as a standardised article.

On this stand is shown the little aeroplane dinghy mentioned recently. This is intended to be carried upside down behind the pilot's seat on a tractor seaplane, so that it will form a streamline, and thus serve a useful purpose when the machine is flying. The boat will support two people, although it only weighs thirty pounds, including the paddles. The particular boat shown has actually been used with a sail, and a rudder is fitted.

THE NIEUPORT (ENGLAND), LTD.,
45, Great Marlborough Street, W.

But little alteration has been made in either the design or the construction of the Nieuports since 1911, the essential Nieuport features holding good. The most noticeable change is in the single-seater "scout" (60-h.p. Le Rhone), in which the wheel-base now consists of a pair of longitudinal V's built of oval steel tube mounted one on each side of the nose of the fuselage. The front leg of each V slopes back slightly, the rear leg having a marked slope. The bottoms of the V's



The Nieuport Single Seater (Height Record type), showing the system of wing bracing and chassis strutting.

ANZANI AERO ENGINES

AS USED BY H.M. ADMIRALTY, WAR OFFICE AND AUSTRALIAN GOVERNMENT, Etc.

NEW CATALOGUE OF 1914 MODELS NOW READY

Apply

STAND **48** OLYMPIA.

CONTRACTORS TO
H.M. ADMIRALTY & WAR OFFICE,
AUSTRALIAN, ITALIAN AND GREEK GOVERNMENTS.

PASSENGER FLIGHTS
"RAPID" Propellers
"GNOMOL" Castor Oil
"G.A.C." Aero Tyres

"G.A.C."
AERO SUPPLIES of
Every Description

EXHIBITION FLIGHTS
"REGY" Propellers
"ROOLD" Helmets, &c.
"G. A. C." Aero Wheels

"G.A.C."
AERO SUPPLIES of
Every Description

48 *THE GENERAL AVIATION CONTRACTORS LTD.* **48**

OLYMPIA

Ask for
New 1914 Catalogue.

SPECIALISTS &

OLYMPIA

Ask for
New 1914 Catalogue.

CONSULTANTS

30, REGENT STREET, PICCADILLY CIRCUS, S.W.

OLYMPIA:—March 16th to 25th, 1914.

And at MILAN, 9, VIA MONTE DI PIETA.

EMAILLITE

THE WORLD-WIDE PREMIER DOPE.

As Extensively used by

H.M. ADMIRALTY, WAR OFFICE & AUSTRALIAN GOVERNMENT

And the Governments and Constructors of FRANCE, GERMANY, RUSSIA, AUSTRIA, ITALY, SPAIN, Etc.

Enquire for 1914 Catalogue at

STAND 48 OLYMPIA.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

are joined by a pair of steel tubes, and between these tubes lies a one-piece axle carrying a wheel at each end. To this axle the V's are slung by rubber cord, a pair of radius rods fixed to lugs on the front legs limiting the motion of the axle approximately to the vertical. To the front legs of the wheel-base V's and some way up from the apex are attached the front spar bracing (load) wires (stranded cables), which are continuous from one wing to the other and are held in clips in their correct position on the wheel-base struts. This attachment seems open to criticism as an engineering job, but it seems to stand up to its work. The rear (warping) wires are brought to a special pylon which carries the operating quadrant.

In other essentials the machine is what has always been associated with the name of Nieuport—tapered wings with rounded tips and the characteristic section of this make. The deep rectangular section fuselage of excellent streamline form and the semi-circular tail plane all reappear, while the workmanship and finish are, if possible, better than ever.

The Nieuport two-seater seaplane (80-h.p. Le Rhone) is, as far as the aeroplane part is concerned, an enlarged edition of the scout, fitted with twin floats and with a fixed vertical fin aft to balance the forward side area of the floats. The float base consists of the original Nieuport land chassis, a set of three steel-tube V's and a central tube skid, but the nose of the skid has been cut off, and the spring axle is omitted. From the top ends of the front and rear V spring four tubes—two a side—sloping out to the centre line of each float. The outer ends of these tubes are each coupled up to the bottom point of the central V tying the base against spreading. From the top of the rear set of float struts at the bottom of the fuselage a pair of diagonal compression struts run to the front point of support of the floats.

The whole makes a neat job, though one is inclined to doubt whether so rigid a structure carried out in relatively light gauge steel tube will stand up to the strain of real sea work without crumpling. The main floats are round nosed pontoons fitted with projecting wings (little inclined planes), to push the nose out of the water, and with a sort of false bottom—about half the width of the whole float—in which three steps are made. The front wing bracing is carried to the centre "skid," which also carries the warp quadrant.

PERRY, BEADLE AND CO. Gould Road, Twickenham.

The flying boat shown by Perry, Beadle and Co., is distinctly the most novel thing in the Show, though it is ad-

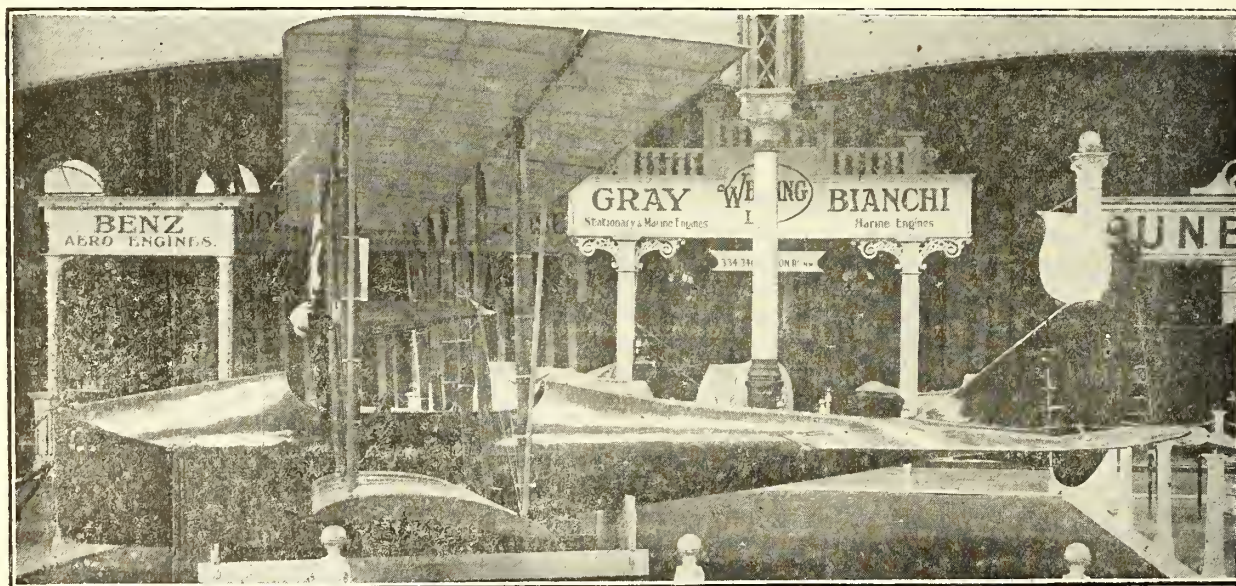
mitted by the makers to be an experiment, but one has sufficient confidence in the experience of both the partners in the building and flying of aeroplanes to class it among those experiments which have every chance of success. Mr. Perry admits that the present machine is intended for comparatively smooth water only, but his system of building suggests that a very much larger boat built on the same lines might be quite efficacious for deep sea work. The chief peculiarity about the machine is that the whole hull, which in front is like a somewhat bluff bowed, single-step hydroplane, tapers aft into a round section, and resolves itself into two horizontal fins, forming an empennage, and a vertical fin running up to the rudder post, so that the general aspect is that of a fish, which accounts for the nickname of "Jonah's Whale" bestowed upon it by the facetious.

The hull, the fins, the rudder, the elevators and the lower planes are built entirely of wood, copper sewn on Saunders' patent system by Saunders, of Cowes, and is quite one of the most beautiful pieces of woodwork yet seen in the aeroplane business. It seems a shame that such work should have to be submitted to the combined perils of the height and the deep.

The lower plane covering, as has been mentioned, is of wood instead of fabric, and so is calculated to stand sea work as well as the boat itself. Naturally it adds somewhat to the weight, but the innovation is well worth trying. The driving arrangement of the machine is distinctly novel. The engine, which at present is a 60-h.p. E.N.V., is fitted right up in the bow of the boat, and drives two tractor screws by means of chains. The absence of radiators is due to delay in supplying these useful adjuncts, and not to forgetfulness by the designers. The screws are fitted to the second pairs of interplane struts. The main propeller bearings are carried in special steel boxes which have sockets above and below the propellers into which the upper and lower half of the struts are fixed, and are braced in position by wire strainers and cables to the respective corners of the next cellules, so that the cables act not only as flying wires, but as supports for the bearings. The propeller shafts are carried back to similar smaller bearings in the rear spar struts. The experiment is a daring one, but given sufficient strength in the struts and cables, there is no reason why it should not be successful, though, of course, it will necessitate very careful truing of the cables.

In the bracing construction the only thing that makes one anxious is whether the strainers themselves are capable of standing as great a load as the cables.

Considered purely as an aeroplane, the machine is a par-



The Perry Beadle Flying Boat, built of copper-sewn wood by Saunders of Cowes, with wooden lower planes.

THE
**GNÔME ENGINE
COMPANY.**

(SOCIÉTÉ DES MOTEURS GNÔME.)

STAND NO. 31.

To whom all applications for Gnôme
engines and spare parts should be made
for
Great Britain and the Oversea Dominions.

THE GNÔME ENGINE COMPANY,
47, VICTORIA STREET, WESTMINSTER, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

tiicularly nice piece of work, all details being carried out on the most modern and approved lines. The upper plane, which is considerably longer than the lower plane, is fitted with double acting ailerons, and the rudder and elevator flaps seem of ample size.

A. V. ROE AND CO., LTD.,
Clifton Street, Miles Platting,
Manchester.

The chief attraction here is the Avro Single-seater Scout (80 Gnome). As far as fuselage, engine mounting, and wheel-base are concerned, this interesting little machine is a standard "Avro" tractor on a small scale. The planes, however, present several features of novelty and interest. In the first place, they are set back at an angle and form a V, and then there is only one strut to each side. This strut is a lattice girder structure, about 18 inches deep front to back, enclosed in a streamline fabric case. Each strut is mounted between the front and rear spars of the plane on a stout steel tube, securely fastened at its ends to the spars themselves. To this tube are brought the interplane bracing wires, of which there are only a single set per plane. The wires are in duplicate, but instead of a set to each spar there is only the one set between front and rear spars. It will be seen that with this arrangement there is no uncertainty as to the distribution of stress in the bracing wires owing to shift of centre of pressure, as these carry the whole load on the planes; nor of the distribution of compression and tension stresses in the spars due to the bracing system, and that an appreciable saving in head resistance may result. Further, owing to the sweep back on the wings the side area of these struts may be regarded as taking the place of tail fins, giving additional directional stability, and in addition will act somewhat as the side curtains of the old Voisins, giving an appreciable amount of lateral stability.

Close to the sides of the fuselage on the bottom planes are fitted a pair of a kind of aileron, pivoted on a steel tube passing through their centre so that they may be put at any angle up to 90 degrees to the line of flight by means of a lever working on a quadrant. These flaps are air brakes intended to spoil the gliding angle of the machine at will, so that a steep descent into a small field may be made without increasing the speed above the normal, or to take way off

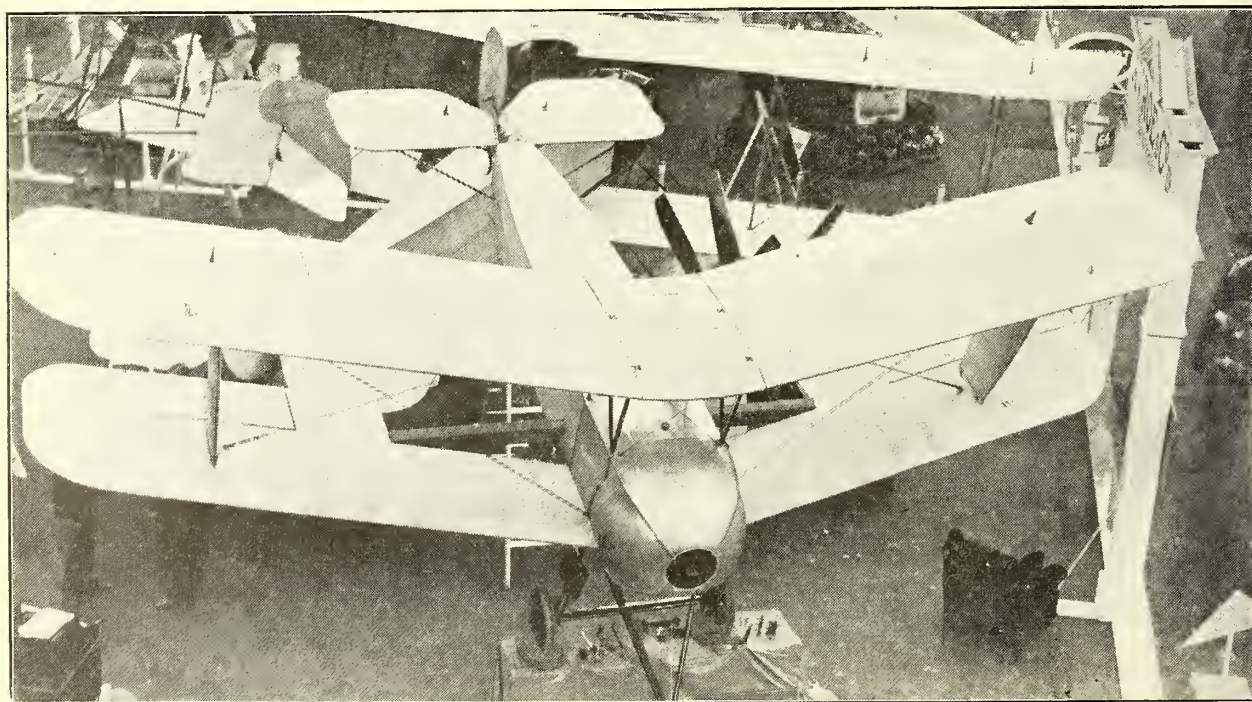
the machine when landing in a confined space. This fitment should be of great use in a machine of this speed (100 m.p.h. is expected), but one ventures to suggest that such an air brake should be fitted nearer the centre of head resistance of the whole machine, as the sudden application thereof in its present position might produce a nose dive of some violence.

The whole machine is of a most workmanlike appearance and the finish is up to modern "Avro" standards.

The Avro propeller biplane (80 Gnome) forms a new departure for A. V. Roe and Co., Ltd., but remains recognisably Avro in many of its parts. The main planes, 44 ft. span, are standard Avro practice, and are fitted with balanced ailerons on both top and bottom planes. Mounted in the centre of the lower plane is a deep nacelle, carrying in front the passenger-observer's seat, followed by the pilot's seat, and affording ample protection from the wind to both. Behind and below the pilot's seat are fitted petrol and oil tanks, carrying fuel and oil for 4½ hours, and finally mountings for the 80-h.p. Gnome, which is carried between bearings as in the tractors, and not overhung, as is usual in propeller machines. A framework of curved steel tubes, which embrace the engine and are mounted on the nacelle longerons, carries the outer bearing.

The covering of the nacelle is continued by an aluminium cowl largely surrounding the motor and fitted with an air scoop behind the pilot to provide cooling air. If the motor actually keeps cool enough under these conditions this arrangement should greatly reduce the head resistance of the nacelle as compared with the usual square cut-off of the nacelle seen in most "pusher" machines.

From the rear spars of top and bottom planes, at the junction thereto of the set of interplane struts next to the nacelle, four steel tube tail booms converge upon a vertical steel tube forming a rudder-post—these tail booms being strutted (spruce struts) and cross-braced in the normal way. Mounted on the top pair of tail booms is the tail plane, which is flat and of fairly high aspect ratio. To the tail plane are affixed a pair of elevator flaps, and on the rudder-post beneath is pivoted a large balanced rudder. All these surfaces, in accordance with standard Avro practice in this respect, are built on steel tube frames, and the operating levers of the movable surfaces are built integral with the steel framework. Forward of the tail surfaces and hinged to the bottom tail booms is a simple rubber-sprung tail skid of steel tube.



The Avro "Scout" with back-swept wings, and air brakes. These brakes are seen "hard on" next the fuselage.

ELIMINATE ENGINE ECCENTRICITIES

by having the latest

6-CYLINDER 120 H.P.

GREEN

Which by reason of the LOW
Petrol and Oil consumption and
HIGH efficiency is, when equipped
for a flight of

500 MILES OR MORE

The LIGHTEST and most RELIABLE Aerial Motor.

6 OR 60 HOURS' TEST AS REQUIRED.

Engines Tested under actual working conditions.

PETROL, OIL & WATER THE ONLY REQUIREMENTS—

The Engine will do the Rest.

WE SHALL BE GLAD TO SEE YOU AT OLYMPIA
STAND 85.

8165 GERRARD.
1293 RICHMOND.

GREEN ENGINE CO., LTD.
166, Piccadilly, W.

The main landing chassis is identical with that on the 80-h.p. Avro which has been described in previous issues of this paper, consisting of a central skid supported on steel tube V's from the nacelle and a cross-axle, supported on rubber-spring telescopic studs, all the springing gear being enclosed in a streamline casing. The front of the nacelle is fitted to take a machine-gun mounting, and the whole should form a very useful unit of the lighter class of the aerial armed forces of the near future. If called upon to criticise, one would suggest that the steelwork between the spar-buttles of the centre cellule below the body appears on the light side, and that if the central skid were carried to the nose of the body it would add little head-resistance and might be useful in preventing a somersault over a small bank on landing, where the present skid point might dig in and turn the machine over.

The third machine on this stand is an 80-h.p. Gnome two-seater tractor biplane of exactly similar type to Mr. Raynham's famous slider. The general characteristics of the machine are the staggered planes of equal span (36 ft.), fitted with balanced ailerons top and bottom, spruce streamline struts, and stranded interplane cables. The lower wing sections originate from the bottom edge of a rectangular fuselage of four longerons, strutted and cross-braced in normal fashion, steel tube bracing being employed in the front end over the float, or wheel-base, and near the engine. To the front end of the fuselage longerons are fitted four curved steel tubes, which give clearance for the motor and carry the front bearing thereof, and also support the very neat cowl which entirely surrounds the motor. The front of the cowl is perforated for cooling air which emerges through a passage beneath the fuselage. Behind the motor are oil and petrol tanks (4½ hours capacity), followed by passenger and pilot seats.

The curve of the cowl is carried back along the fuselage, tapering off gradually to the tail, and at the two seats a wind-shield which runs smoothly out of this curve is fitted. Both seats are fitted with single lever and rudder-bar controls, and the rear (pilot's) seat with the usual engine controls and a very complete instrument-board. At the rear end of the fuselage is a tail-plane with steel tube frame, rectangular with rounded corners, fitted with divided elevator flaps of similar construction and a large balanced rudder.

The front end of the fuselage is fitted with all the clips for the Avro centre skid wheel-base, but the machine shown is

actually fitted with floats, which can be exchanged within an hour for the land gear.

The float-base consists of a pair of oval tube V's. From the tops of each V one tube on each side slopes outward to the centre line of the float, and then bends vertically downwards into a special compartment in the float. Within the float this tube is fitted with a cross-tube like the head of an inverted T, which is lashed to a cross-member of the float with elastic cord. From just below the bend in these float struts tie-tubes run to the bottom of each V, and a raking thrust strut comes from the tops of the rear V on each side to the front float struts. One has some doubts about the ability of a single tube to stand the strains set up in the float, even when a spring intervenes.

The floats themselves are plain pontoons, with three-ply skins fabric covered and divided into 8 compartments. The compartments containing the springing being closed by a flexible leather cone fastened to the deck and to the float strut.

Under the tail is mounted the tail-float, suspended at the front by two hinged steel tubes and at the rear by a slotted plate sliding over an extension of the rudder-post, against a spiral spring. On the same extended rudder-post, and moving with the rudder, is a small water-rudder.

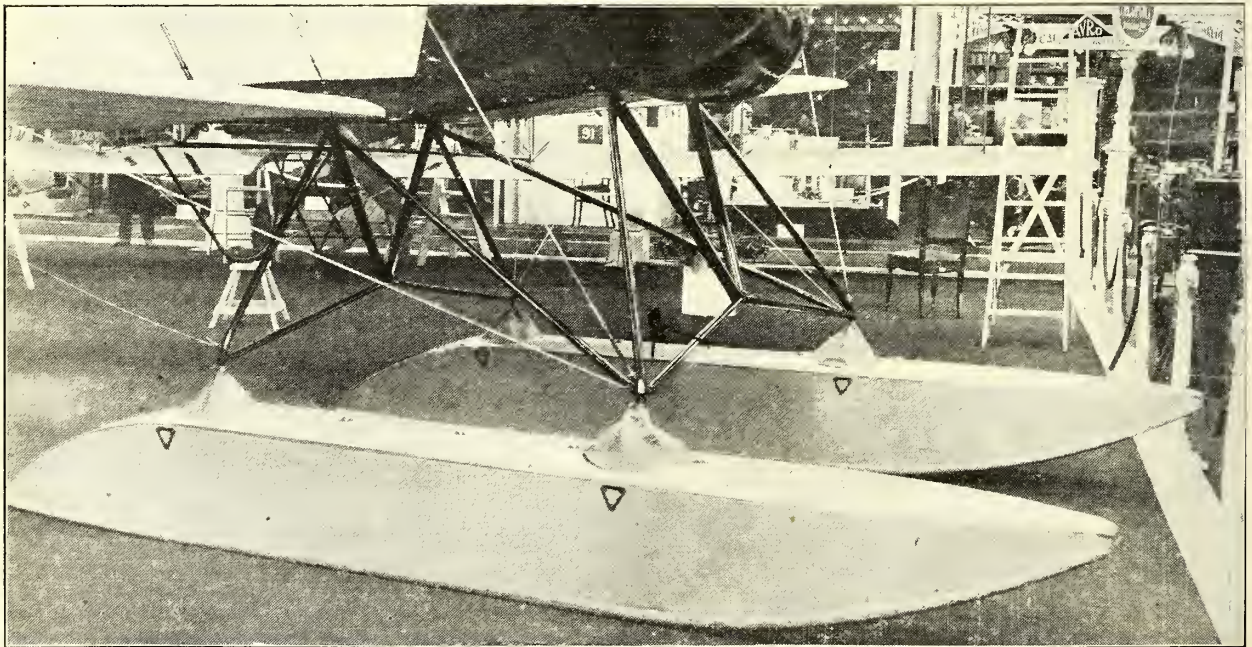
Such excellent results have been obtained from this type as a land machine that more than ordinary interest will attach to her preliminary trials on the water.

THE SOPWITH AVIATION CO., LTD.,

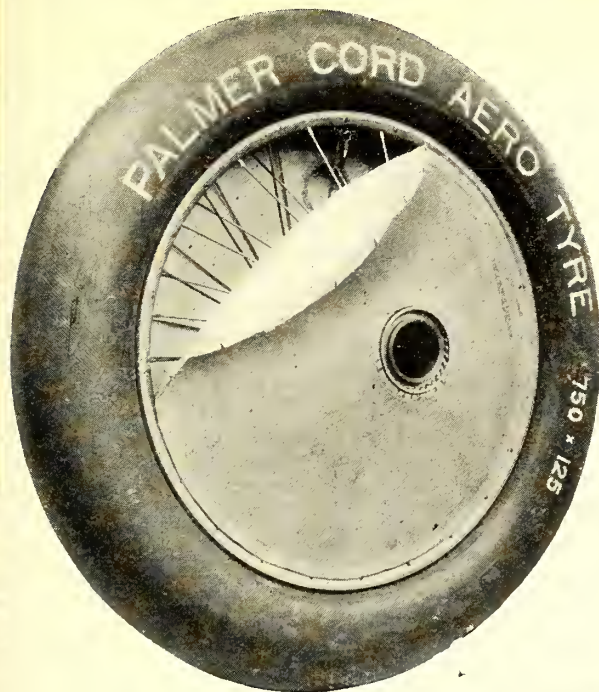
Kingston-on-Thames.

The "Bat-Boat" shown by the Sopwith Aviation Co., Ltd., is one of the finest examples of seaplane work ever turned out. Its general arrangement resembles the first Bat-Boat in that the aeroplane portion is carried on a hydroplane boat, but in this instance the hull has been enormously enlarged, and now gives some idea of what a flying boat in the future is going to look like. The upper plane is considerably longer than the lower, and is flat throughout its span, while the lower plane has a pronounced dihedral which allows the tips to clear the water even when the boat is rolling considerably. The planes are staggered forward and form a fine solid girder, lateral control being by ailerons.

The engine is a 200-h.p. Salmson with a compressed-air self-starter, fitted high up on the rear of centre cellule struts, and the radiator is placed in front of it on the forward pair of struts



The float arrangement of the Avro Seaplane, showing how the vertical tubes enter the spring-boxes through flexible caps.



Olympia

Aero and Marine EXHIBITION

MARCH 16th to 25th

PALMER

CORD AERO TYRES

- ¶ To those who follow Aviation, either as a pastime or a career, there is no more interesting accessory exhibit than the collection of Palmer Cord Aero Tyres on **STAND No. 74.**
- ¶ It is all to the good of the movement that this important detail of Aircraft should have engaged the attention of Tyre manufacturers with an enviable record for research and achievement in Motor Tyre construction.
- ¶ The tyres embody many novel and ingenious features, a remark which applies equally to the Palmer Aero Wheels and Quick Detachable Wheel Shields which will also be exhibited in several sizes and types.

Demonstrations of Tyre Making, the Resilience, Load Carrying and Lateral Stability of Palmer Cord Tyres at Intervals Daily.

The Palmer Tyre Ltd.

AVIATION DEPARTMENT,

119, 121 and 123, SHAFTESBURY AVENUE, LONDON, W.C.

Telegrams : "Tyricord, Westcent, London."

Telephone : Gerrard 1214 (4 lines).

so it is practically over the head of pilot and passenger. There is a gravity tank over the engine which is fitted with a float arrangement like a carburettor so that it cannot overflow, and it is fed by a windmill pump from a big supply tank behind the pilot's seat. Under the fore-deck of the boat, and in front of the passenger's seat, is a small cycle engine driving a wireless plant. There is a very large tail with two elevator flaps, between which is a big balanced rudder. The tail booms, which join the rear spars at the first pair of interplane struts, taper till they meet at the rudder post. The boat has a single step and instead of having air pipes from the inside of the boat to the centre of the step, half-pipes are fixed to the outside of the boat and run to each end of the step. The boat itself is a particularly fine piece of work, and short of actually landing it at full speed on a stony beach one can scarcely imagine even the energetic sailormen of the Naval Air Service doing much damage to it.

One gathers that in Mr. Sopwith's opinion the present size of Bat-Boat about reaches the limit for those in which the engine is fixed to the interplane struts, and that when it comes to larger sizes it will be found worth while to put the engine inside, or partially inside, the boat, and seat the pilot and passenger on the deck, which certainly strikes one as being a more pleasant position for the crew, although it would probably not increase the actual safety of the machine so far as strength of construction is concerned. This Bat-Boat is absolutely a seaplane as distinct from a waterplane.

J. SAMUEL WHITE AND CO., LTD.
East Cowes, Isle of Wight.

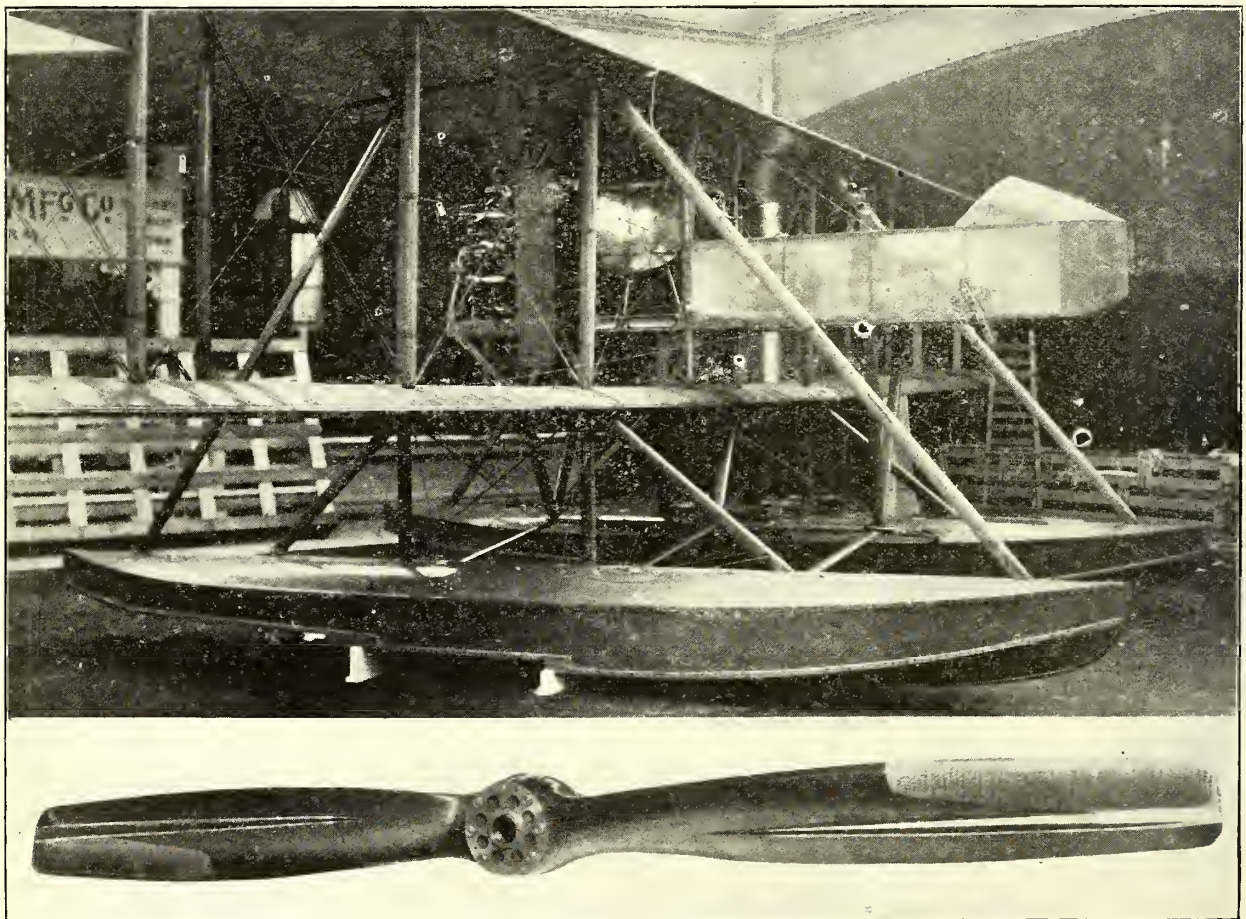
The Wight Seaplane, which has a 200-h.p. Salmson (Canton-Unné) engine, follows the lines of the very successful

"Wight" (160 Gnome) Seaplane which is flying on the Solent and has been described in these pages. It is a "pusher" biplane of large size (63 ft. span), with pilot and passengers' seats, tanks, engine and radiators fitted into a streamlined body mounted between the top and bottom planes. Four open tail booms of channel section run back from ends of the top and bottom rear spars of the centre cellule and carry the tail plane and elevators and the twin balanced rudders. Beneath the ends of the centre cellule are mounted the two floats.

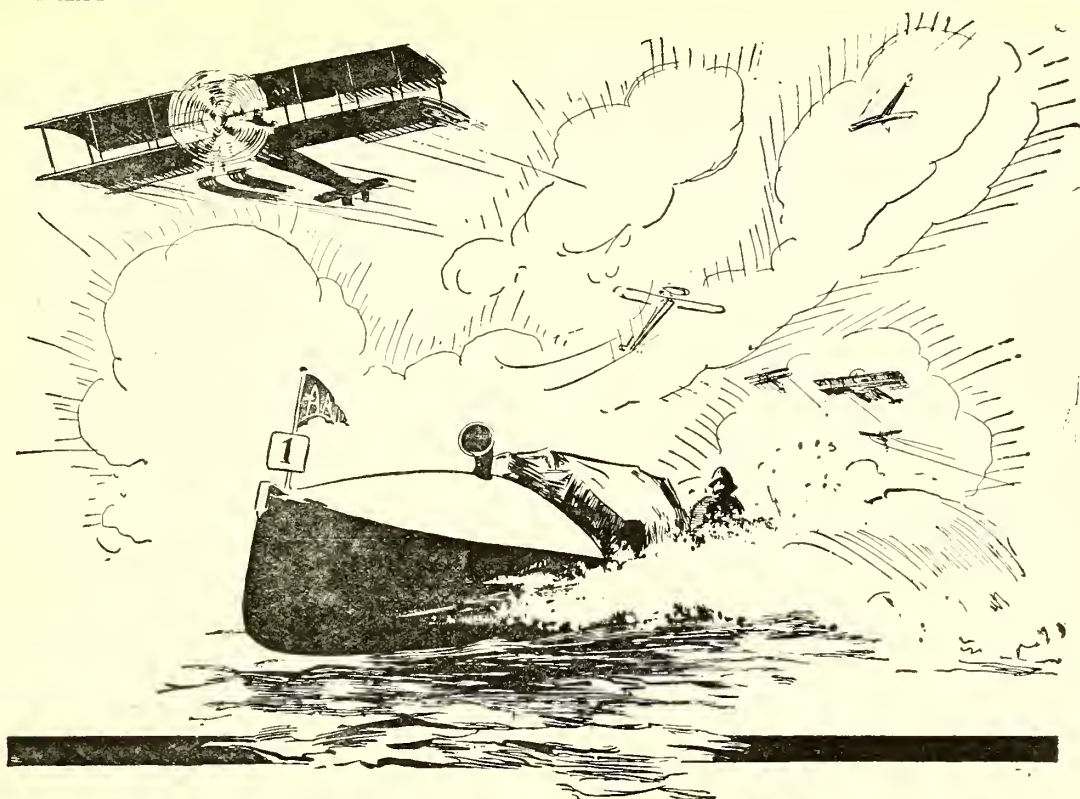
From the front and rear spars two struts descend vertically to the centre line of each float, and from the same points two other struts, one sloping forward and one backward, also come onto the centre line of the float. Two additional struts, one from the front spar and one from the back spar, sloping forward and backward respectively, also come to the centre line of each float, which are thus supported at six equi-distant parts along their length.

Under the body are three sets of V's, the front one coming from the body itself and the two rear ones from the front and rear spars of the lower planes, under the struts carrying the nacelle. These V's, at their lower ends, are united by a longitudinal beam and are tied outwards to the floats in line with the second, third and fourth vertical float struts. The floats themselves are very long (21 feet) and of relatively narrow beam (2 ft. 9 in.). They are generally of boat form, but with flat bottoms and with three steps each, and are built mainly of 3-ply wood fabric covered. The floats are spaced 12 ft. apart (centre to centre).

The main planes, which are swept back towards the tips, are of equal span (top and bottom) and have a chord of



The Wight Seaplane, with 200-h.p. Salmson motor. Below is the double-camber propeller built on the same lines as the double-camber planes of the machine.



Anglo's Famous Fuels.

PRATT'S PERFECTION

Motor Spirit.

The highest grade of Purified Petrol. 100 per cent. pure. Has a wide reputation for absolute reliability—clean combustion and exceptional speed making.

IN THE FAMILIAR GREEN CAN.

PRATT'S II.

A genuine Second Grade Spirit for the lighter Marine and Stationary Engines. Satisfactory and Economical.

IN CANS HALF SILVER AND HALF GREEN.

TAXIBUS SPIRIT.

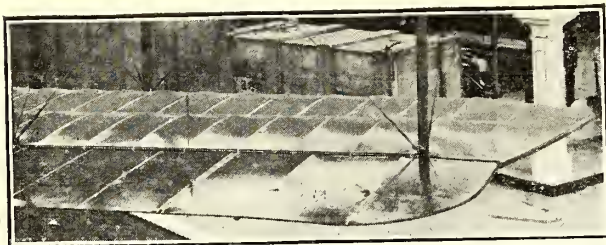
Unequalled for heavy Marine Engines, Commercial Vehicles, &c.—gives the greatest horse power and ton mileage per gallon. Consistently reliable under all sorts of conditions.

IN SILVER CANS.

STAND No. 75.

AERO and MARINE EXHIBITION, Olympia, March 16th to 25th, 1914

**THE ANGLO-AMERICAN OIL COMPANY, LIMITED,
36-38 Queen's Anne's Gate, S.W.,**



The Double-Camber of the Wight Planes, which is the design of Mr. Howard Wright, and according to Eiffel has extraordinary lifting powers.

5 ft. 6 in. bottom and 6 ft. 6 in. top. The spars are of silver spruce and the wing section has the peculiar double camber on top associated with the name of Mr. Howard T. Wright. The interplane struts (as all the struts throughout this machine) are of silver spruce, in two halves, hollowed and bound with silk. All bracing wires are stranded cable throughout, and are spliced, not soldered. Lateral control is by balanced ailerons of large size fitted to both planes and operated by a single lever.

It is of interest to note that the success of the double cambered plane has led Mr. Howard Wright to design and test a propeller with the same features with great success, and such a propeller is fitted to this machine. The workmanship and finish throughout is of the highest class, and the details of construction are of great interest. These will be dealt with at length in our next issue.

VICKERS LTD.,

Broadway, Westminster, S.W.

Vickers Ltd. show the latest version of their steel-built armed biplane, familiarly and somewhat objectionably known as the "gun" bus." At first glance this machine differs very little from those familiar to habitués of Brooklands, but on close examination it shows a good many alterations and improvements. The main spars are now of wood, which is about the one place in an aeroplane where at present wood is admittedly superior to steel. Double-acting ailerons have been fitted, in the most effective

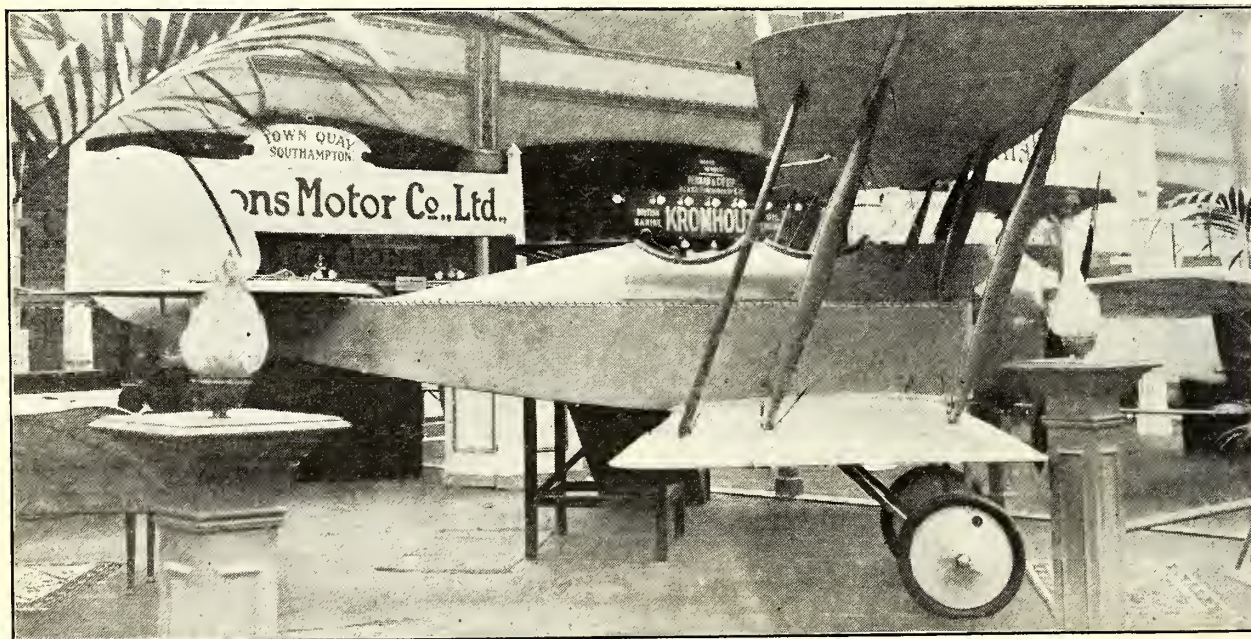
possible way, by making the hinge edge of the aileron round, and fitting it into a groove behind the rear spar, so that there is as little gap as possible between the surface of the wing and the surface of the aileron when the latter is being used. The body of the machine is more rounded, and less likely to act as a *point d'appui* for side pressure, and the casing is carried as far aft as possible to the engine.

The shield in front of the gunner is now shaped so that he has more room to move inside, while at the same time his head is entirely covered when aiming, so that the light over his head is not likely to interfere with his sights. There is a good-sized balanced rudder, and the flat tail is apparently neutral, neither lifting nor non-lifting. If criticism be acceptable, one might suggest the addition of a fixed fin in front of the rudder.

The chassis is of the familiar two-skid two-wheel type, with only four upright struts, so that it has been simplified to the utmost, and reduces head resistance to the minimum. The engine fitted is a 9-cylinder 100-h.p. monosoupape Gnome, and is, one gathers, the first to come to this country. Like all Gnome work, it is a very neat job.

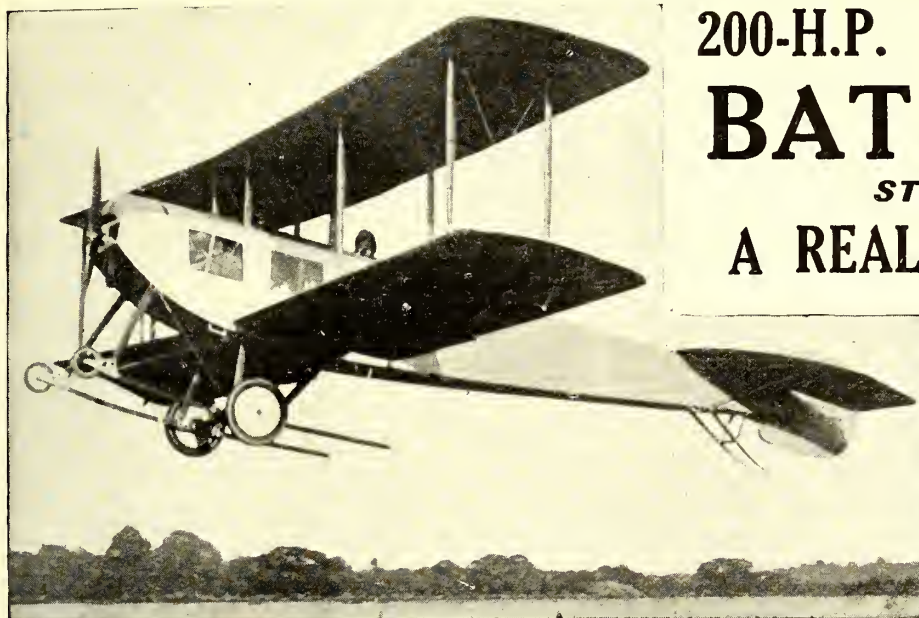
The detail work of the machine has been well thought out, spliced stranded cable is used throughout, and the steel tubular struts are well stayed. No attempt has been made at putting a show finish on the machine, which therefore looks all the more workmanlike.

The little Vickers Scout, also with a 100-h.p. monosoupape Gnome, shows decided promise, as its general lines are quite good. It is a very small tandem-seated tractor biplane with staggered planes, the engine being almost entirely enclosed by the aluminium cowl. The chassis has been reduced to a minimum, consisting as it does of two longitudinal inverted V's of steel tube, the single axle being slung from rubber shock absorbers fixed to the apices of the V's. Lateral control is by ailerons. The machine has been got through somewhat hurriedly for the Show, and so is lacking in polish, but there are the makings of a very fast two-seater about it. The thinness of the wings in side section seems unusual, and though they are doubtless calculated for an adequate factor of safety, one would like to see the main spars a trifle deeper vertically, if only to avoid vertical whip in the leading edge, especially as there is only one pair of struts a side outside the fuselage.



The Vickers "Scout" biplane, 100-h.p. monosoupape Gnome, designed for 100 m.p.h. with pilot and passenger.

OLYMPIA — DO NOT MISS THE 200-H.P. SOPWITH BAT BOAT



STAND 44.

**A REAL SEA - GOING
AIRCRAFT.**

EFFICIENCY

is the
Characteristic
of

**Sopwith
Aeroplanes.**

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

Telegrams :
"SOPWITH, KINGSTON."

DO NOT FAIL TO SEE
Stand 64

AVRO

WE ARE BUILDING SEVERAL TYPES OF

AVRO

AEROPLANES UP TO 240 HORSE POWER.

A selection of Three will be on view.

Nothing Better

A.V. ROE & Co. Ltd.

Contractors to Admiralty, War
Office and Foreign Governments

Clifton Street, Miles Platting
MANCHESTER

**O
L
Y
M
P
I**

AVRO

**L
Y
M
P
I
A**

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS

The New "Short" Seaplane.

The machine illustrated in the accompanying dimensioned drawing differs from the 160-h.p. Gnome-engined seaplane to which we refer in that it is designed for a different engine, and consequently the engine cowl is slightly different. In particular, it lacks the large streamline funnel over the engine which can be seen in the photographs.

As may be seen, the machine is generally on standard tractor biplane lines. It has a very wide and relatively shallow fuselage, rectangular in section, built with ash longerons and spruce struts. U-bolts are employed for fastening the fuselage struts in place and to carry the box wiring. The 14-cylinder Gnome is mounted in steel housings within the fuselage members. The motor is surrounded by a sheet metal cowl, in the top front of which air-holes are cut for cooling, and on the top is fitted the chimney already referred to to carry away the both air and exhaust gases. The rounded engine cowl is carried back and tapered off into the fuselage proper behind the pilot's seat, being cut out and bellied up to serve as wind-screens at the passenger's and pilot's seat.

At the rear of the fuselage is the empennage, consisting of a large cambered fixed tail-plane, followed by divided elevator flaps, a large fixed vertical fin, and a balanced rudder of generous size. Built into the fuselage, behind the engine, is the centre cellule to which the main wing structure is attached. This consists of the ordinary short top section of wing, mounted on four steel tube struts; but the bottom rectangle of the structure, instead of being within and part of the fuselage, is beneath it, and consists of a pair of heavy steel tubes in line with the front and rear spars of the bottom planes, joined near the sides of the fuselage by a couple of lighter steel tubes. The corners of this rectangle of steel tube are immediately beneath the struts from the top plane section, and are jointed to them with substantial steel clips.

The cross-tube, which corresponds with the rear spars, ends in a short snout of steel (see Fig., joint A). This snout fits into the end of a long steel box which fits over the end of the bottom rear spar of an outer wing section, and is united thereto through a large steel eyebolt. The face of the steel box which would normally lie against the side of the fuselage is cut away, and the joint becomes a hinge. The rear spar of the top plane is similarly fitted, the spar of the centre section carrying the snout. Thus, the junctions of the rear spars of the outer sections with the centre section form pairs of hinges.

The front spars of the outer wing sections are also fitted with long steel boxes, which terminate with steel pins—about $1\frac{1}{2}$ in. diam. by 4 in. long (see Fig., joint B). When the wings are in the flying position these pins enter the front cross-tube referred to above in the case of the bottom, and the steel tube front spar of the centre top section in the case of the top, and are held in place by a heavy locking pin (about $\frac{1}{2}$ in. dia.) which passes right through both members of the joint. In addition, each wing is held from folding back by heavy drift wires. Thus, by pulling out four pins and undoing four wires, the wings may be folded back parallel to the fuselage, with the trailing edges of the bottom planes just not meeting under the centre line of the fuselage, in a few seconds. All four locking pins can be taken out or replaced from the passenger's seat, a winding reel is fitted by which the wings can be wound back or forward from the same place, and a simple catch is fitted at the rear end of the fuselage which clips the end rear interplane strut near the spar, holding the wings securely in the folded-up position; and as the whole of the interplane bracing swings with the wing, there is no chance of the truth of planes being interfered with.

Though not easy to describe clearly, the whole arrangement is simple and very thoroughly carried out, and the utility of being able to reduce a 60-ft. span machine to an overall width of 9 ft. in a few minutes is too obvious to dwell on here.

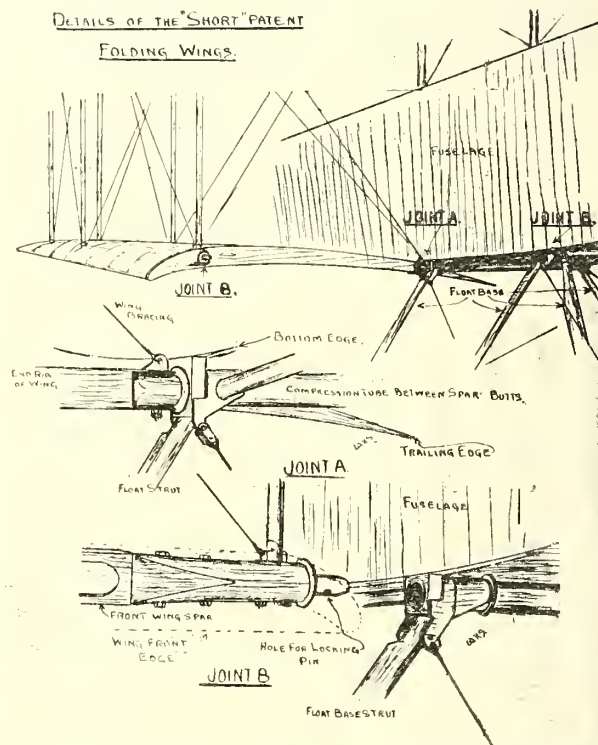
The wings themselves are built on spruce spars, channelled in the case of the front spars and solid in the rear ones. The ribs are lattice-work of spruce, those acting as compression struts against the internal drift wiring being a kind of box girder with solid tops and bottoms and lattice-work sides. The leading edge is of spruce, and a wire is used as for the trailing

edge. The interplane struts are of oval steel tube pinned into sockets. Through the tube, and the baseplate of the socket, and the spar (which is strengthened at these points) passes a steel U-bolt, which has on it a pair of nuts screwed down onto the baseplate of the socket, and is pulled up and locked by two sets of double nuts against a washer-plate on the far side of the spar. To these U-bolts the interplane wires are fixed. All the lift wires are multiple-strand cable doubled, and one gathers that similar cable is used for the internal drift bracing.

The top planes only, which are of much greater span than the bottom ones, are fitted with very large unbalanced ailerons. It might be expected that these would have proved inadequate, or at least heavy to work, in a machine of such speed and weight, but Mr. Gordon Bell, whose partialities are rather towards a lively machine, says that he knows none so easy to handle, no mean testimony to the excellent balance and high aerodynamic qualities of these seaplanes.

The general arrangement of the float base may best be seen from the drawings. All the struts are mounted on universal joints at their top ends, and those raking forwards are of spruce, the others being steel tube with wooden streamliners.

The floats themselves are of wood, the bottoms being reinforced with metal, and are divided into numerous watertight compartments; each such compartment has a drain tube, all of which are brought to a single valve-box from which the whole



float may be blown dry. This box is also fitted with pressure release valves to release the float from the effects of reduction of atmospheric pressure at high altitudes. The floats are not stepped and are placed well forward, and a fair-sized tail-float is fitted to support the tail when at rest.

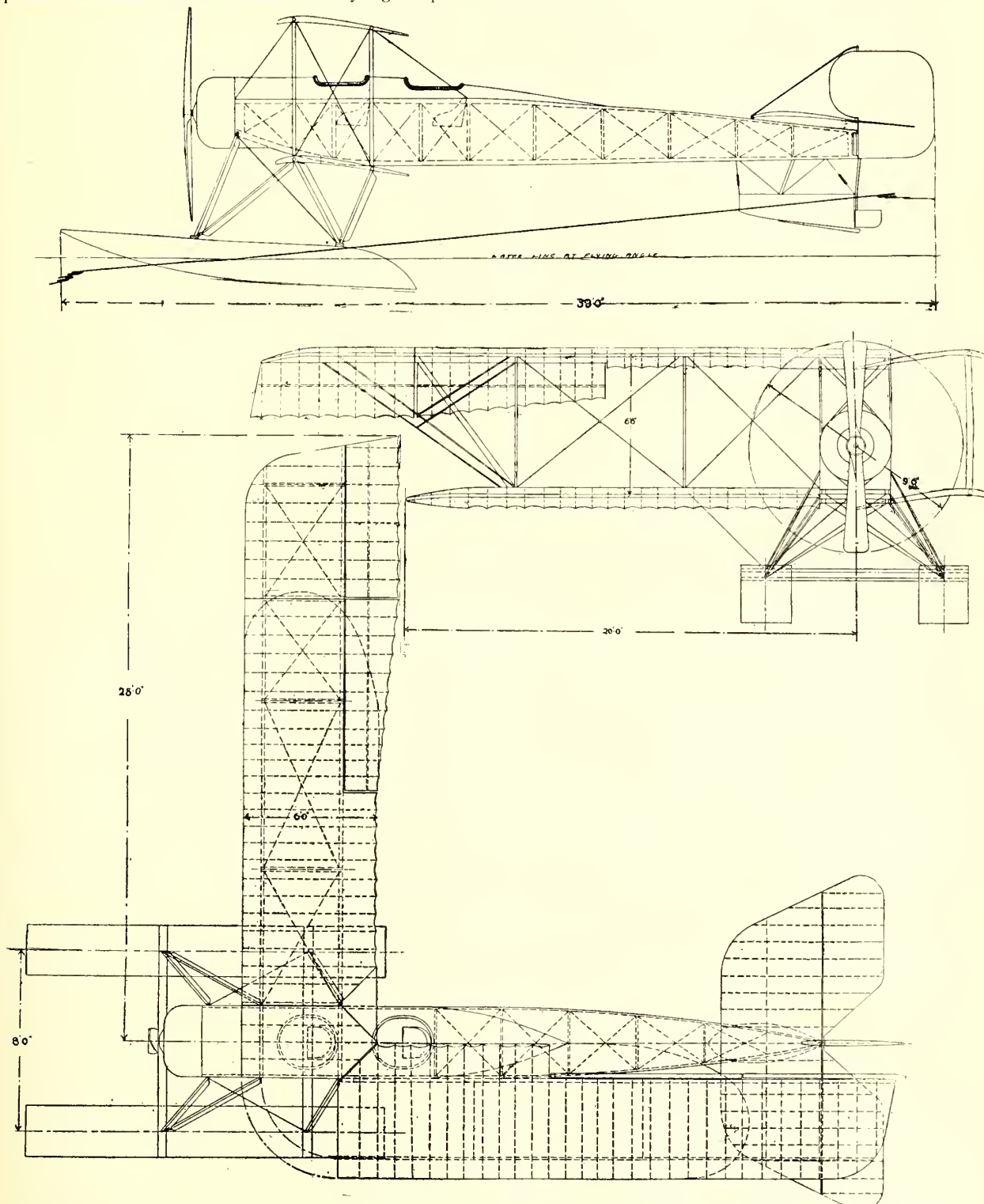
Each machine is fitted with a set of slings and a ring fastened to the centre top wing section by which it may be lifted on board ship. Provision is made for carrying a wireless outfit weighing 120 lbs. and an aerial, and all machines supplied to the Admiralty are so fitted.

The main dimensions, etc., of the machine are:—Span, top plane 56 ft., bottom plane 40 ft.; chord, 6 ft.; total area, 550 sq. ft.; length overall, 39 ft.; weight, empty, 2,000 lbs.; useful load, pilot and passenger 320 lbs., fuel and oil 600 lbs., wireless 120 lbs.—total, 1,040 lbs.; 160-h.p. Gnome (14 cylin-

ders); fuel capacity, 65 gallons—5 hours' flight; oil capacity, 15 gallons; speed, 78 m.p.h.; climbing speed, 600 ft. per min. to 1,000 ft.

In spite of the very large dimensions of this machine, her general appearance at a short distance gives none of that impression of clumsiness so often found in really big aeroplanes.

This neatness of outline is not traceable to any undue slenderness of structure. All the parts, on the contrary, when examined in detail, appear of ample strength, but the strength is obtained by the intelligent use of suitable material, and the excellence of appearance is due to the obvious fitness of the machine for the work for which she is intended.—W. H. S.



Above is an authentic scale drawing of the new Short Seaplane with folding wings. The space saved by folding can be judged by the positions of the centre lines in relation to the outside limits of the picture. The extreme width when folded is less than the span of the elevator flaps. The shape of the ailerons should be noted, as also the simple but strong chassis arrangement. The machine is designed for a stationary radial engine of 200 h.p.

Seaplanes at Eastchurch.

On Wednesday of last week, the 11th, two of us visited Leysdown to see the first flights of one of the latest Short seaplanes, 160-h.p. Gnome, which was just to be delivered to the Naval Air Service. From the Short Bros.' works at Eastchurch we were driven over to Leysdown by Mr. Oswald Short, where we found the machine on the beach ready to start. The regular process is for the seaplane to be assembled in the works. It is then put on a two-wheeled trolley, the tail is hitched to a car, and it is towed to Leysdown, whence it is flown to Isle of Grain. Sometimes the seaplanes are first tested with a land chassis, but in this case the machine was built straight onto her floats, and when we saw her on the beach she had never been in the air. Mr. Gordon Bell climbed in, with Mr. C. R. Fairey as passenger, the machine was pushed into the sea, Mr. Short and one of his men going up to their waists in the ice-cold water to clear the land-wheels.

These machines have internal starting handles, and as soon as this one was well afloat, the engine was opened out and away she went down wind and diagonally across the run of the sea. Then, with the strong wind well on the port quarter, Mr. Bell picked her off the water and she lifted like a bird, after a shorter run than one usually sees when a machine starts down wind on a smooth aerodrome. After one or two curves to get the feel of the machine, Mr. Bell did a sharp right turn, coming back close along the shore, and after another circuit over the sea, made a couple of sharp spirals over the land, but without gliding distance of the sea, apparently to test her steadiness in land gusts. Then he went off to Isle of Grain.

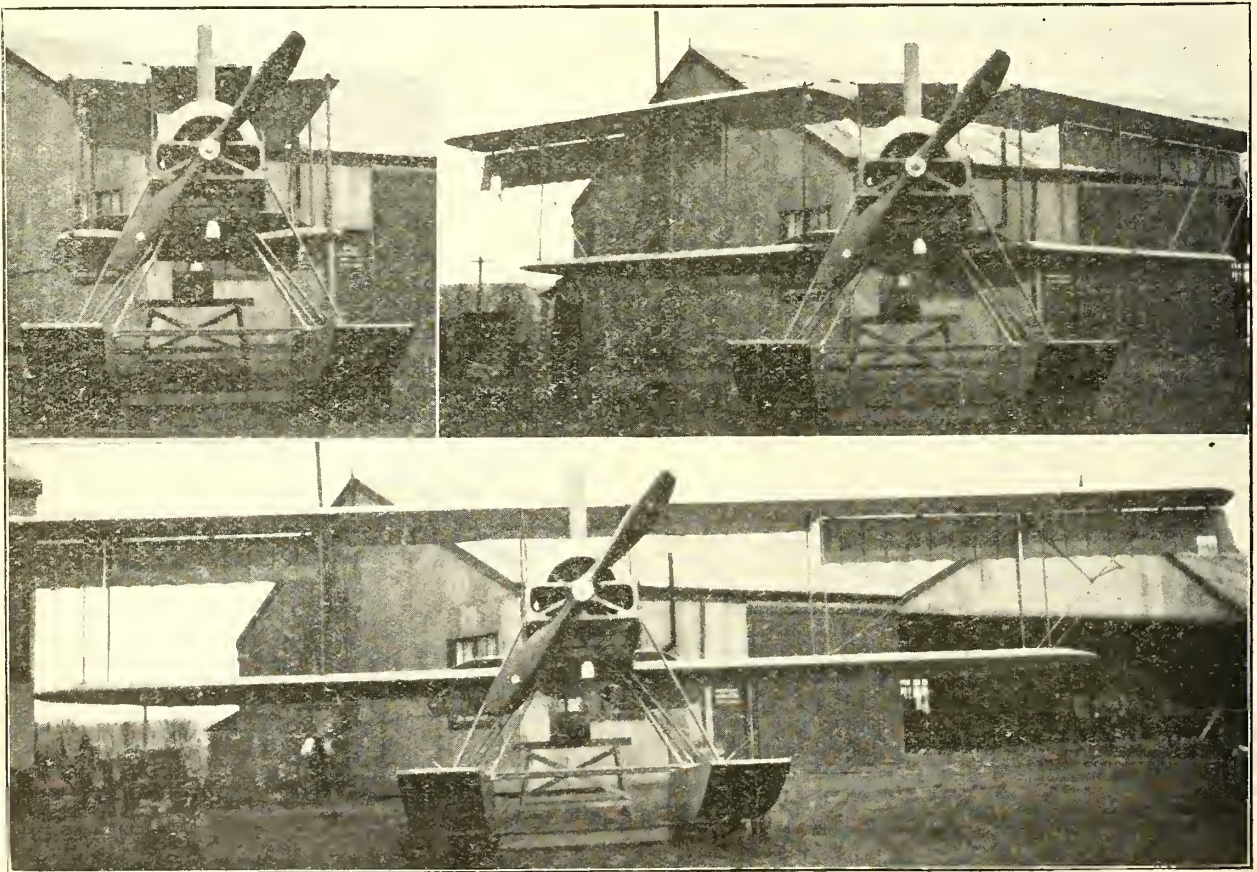
I had not seen a modern Short get off water before, and the way she behaved startled me. After the heavy, soggy flying of the machines at Monaco and Deauville last year, and the very similar behaviour of certain of the seaplanes now owned by the Navy, the difference was most marked. Despite

her size and weight, the Short flew and handled with the buoyancy of the best land machines, although it was her first trip and she was untuned.

Later Mr. Bell returned from Isle of Grain and told us that he had passed her through the tests with ease. He had not the official speed, but he estimated it at about 77 to 78 m.p.h., which I should say is about right. Her official climb was 3,200 feet in 8 mins. 10 secs., and her first 1,000 feet was in 1 min. 40 secs. When one considers that fully loaded she weighs above 3,000 lbs. (about a ton and a half), one sees there must be wonderful efficiency somewhere. The useful load carried on this test consisted of the pilot and passenger (13 stone for Mr. Bell and 15½ for Mr. Fairey—say 500 lbs.); and a wireless set weighing 120 lbs., 56 gallons of petrol, and 15 of oil—about another 500 lbs., so that she was carrying all told about 1,100 lbs., or nearly half a ton of dead weight. It seems then that the Short Brothers have good right to claim that they make the most efficient seaplane in the world. At any rate, if there is anything to beat it one would like to know of it.

On our return to Eastchurch we were allowed to go over a 100-h.p. machine of similar type, which is illustrated and described elsewhere by Mr. Sayers. This is the first occasion on which it has been permitted to describe and illustrate the patented folding wings of the Short biplanes, the British and German patents being now duly signed, sealed and delivered.

The utility of the folding wings is obvious, and was put to very practical use last week by Commander Samson when he flew to Eastbourne, on the ancient No. 10 Short, now fitted with new wings. None of Mr. Fowler's sheds were big enough to take the 60-foot span of the machine, and great was the surprise of the Eastbourne people when in a couple of minutes the span had been reduced to a mere 8 feet, and she was pushed into a shed already holding another machine.



The new folding Short Seaplane, closed, half open, and open.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS, AEROPLANE WORKS AND FLYING GROUNDS— EASTCHURCH, ISLE OF SHEPPEY.

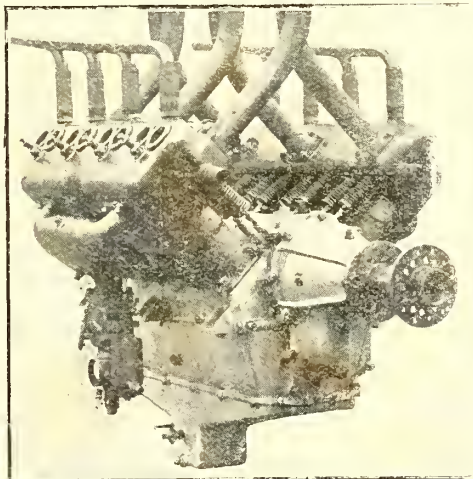
Telephone :—9. MINSTER-ON-SEA.

Telegraphic Address :—"FLIGHT, EASTCHURCH."

SUNBEAM AVIATION ENGINES

**8 CYL.
150 h.p.**
(Illustrated)

As purchased by the
WAR OFFICE for the
Royal Aircraft Factory
after severe tests ex-
tending over several
months.



**12 CYL.
225 h.p.**

The same excellence
of design, material and
workmanship which has
made the Sunbeam motor
supreme on land is em-
bodied in the aviation
engine.

Cross Country Flights arranged on moderate terms. Apply

THE SUNBEAM MOTOR CAR Co., Ltd., Upper Villiers St., Wolverhampton.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Victims of Science.

When time after time one is called upon to record the deaths of one's personal friends, or of men in the prime of life whose continued existence is of high value to one's country, and when one sees their lives thrown away because of the ignorance or obstinacy of those who have been placed in high positions privately through personal influence, though publicly on account of their alleged scientific attainments, it is a trifle hard to write calmly and without heat about the causes of these deaths. However, I will endeavour to deal in a strictly practical way with the various fatalities on aeroplanes built by the Royal Aircraft Factory.

It is well to remember that the total number of aeroplanes turned out by the R.A.F. has been comparatively small. The majority of those composing the number of 161, recently stated by Colonel Seely to be in the possession of the War Office, have been delivered by private firms. Probably a third of them are Farmans. Of the B.E.s the greater number have been built by Vickers Ltd., and the Bristol Co., and there are several built by Handley Page, Ltd., Hewlett and Blondeau, the Coventry Ordnance Works, and the Grahame-White Co., and in most cases the bad original design is saved by the excellence of the workmanship and material. The fatal accidents have all occurred on machines built by the Royal Aircraft Factory.

Here is the R.A.F.'s record of sudden death:—

Mr. Theodore Ridge—killed on an experimental biplane which had previously been described in this paper as bound to kill its pilot.

Mr. Desmond Arthur—killed on a Factory-built B.E.2 through the breaking of a wing shortly after the machine had been overhauled and inspected at the Factory.

Mr. Ewart Haynes—killed on F.E.2, a Factory-built propeller biplane, which was known to be dangerous to fly, and should have been known to any experienced builder of aeroplanes to be wrong in its aerodynamic design and dangerous in its constructional details.

Captain Downer—killed through the breaking of a wing in the air on a Factory-built B.E.2. The constructional design of B.E. wings has been criticised on many occasions in this paper.

Captain Allen and Mr. Burroughs—killed through the breaking of a rudder post on a Factory-built biplane, B.E.4 (Army number 204.)

Let us now recall a few further facts:—

There have been no fatal accidents, naval, military, or civilian, on tractor biplanes in this country except on Factory-built B.E.s. This, be it remembered, is despite the large number of Avros, Sopwiths, Bristols, Shorts, Caudrons, Bréguets, and "home-made" tractors which have been flying continuously for the past four years. The only exception one might make would be the death of Mr. Wight, whose Avro caught fire after a bad landing at Shoreham and burned him to death, though he was unhurt by the fall.

There have been no cases of tractor biplanes breaking in the air in this country with fatal results except the Factory-built B.E.s. The only cases of which I know where breakages have occurred to other tractors are the following:—Extensions fitted to the wings of Mr. Kemp's Avro by the men in the shed at Brooklands without Mr. Roe's approval, broke just before the start of the Circuit of Britain in 1911. Mr. Kemp came down from 1,000 feet unhurt, though the machine was wrecked. The warp-wire of Mr. Ewen's Caudron broke at Hendon, when too low for him to stabilise with the rudder, and he was somewhat cut about the face. The rudder-post of the first Sopwith tractor with a covered fuselage buckled, but Lieut. Spenser Grey, R.N., landed on an enforced circular path without straining a wire. Other minor breakages of unimportant parts have doubtless occurred, but without causing any trouble. Against these I was told some time ago that several Factory-built B.E.s and R.E.s had given way in important places.

I submit to the Director-General of Military Aeronautics and his military technical advisers that if any firm of independent constructors had such a murderous record as has the R.A.F. it would be struck off the list of War Office contractors without further argument, and without hope of reinstatement.

Further, I submit that if the Department of Military Aeronautics will hold an inquiry as to the design and construction of Mark B.E.2 biplanes and will take the evidence of the workshop foremen and practical constructors—apart from the scientists and theoreticians—among contractors who are building B.E.s, they will obtain sufficient criticism to condemn almost every distinctive feature of the B.E.—provided always they can guarantee that in the event of the practical men speaking their minds they will not jeopardise their firms' chances of obtaining further orders.

On many occasions I have asked the actual builders of B.E.s why they did not point out the danger of certain constructional methods to which they drew my attention, and the invariable reply has been that if they did so, the R.A.F. would see to it that they were left out when the next contracts were placed.

Again, I submit that the series of deaths on monoplanes in the latter part of 1912, which caused the use of monoplanes to be barred, through the influence of the R.A.F. officials who had their own wares to push, was not as serious a matter as is this list of accidents on R.A.F. machines. Officer-aviators of all foreign nations and civilian aviators in this country continued to fly monoplanes of the various condemned makes without an undue proportion of accidents, while the R.A.F. staved off competition from this direction for a whole year. But now the number of accidents on machines built by the R.A.F. is out of all proportion to the total number ever used.

Will the Department of Military Aeronautics suspend all flying on Factory-built machines pending an inquiry into their design and construction to be held by a committee composed of its own Inspections Department, reinforced by the Naval Engineer officers of the Air Department at the Admiralty, and assisted by some of the practical men among independent constructors? If not, what is the alternative? Are the officers and N.C.O. pilots of the Royal Flying Corps, Military Wing, to continue to fly Factory-built machines which they now know to be as dangerous as I have continually stated them to be? Or is inquiry to be burked, and are alterations to be made in the R.A.F. on the quiet, to save Colonel Seely's friends.

No mercy was shown to builders of monoplanes in 1912. The Deperdussin Company was "broke," and we lost a valuable source of supply. The Flanders firm was forced out of business and we lost one of the most brilliant and sane designing brains in the aeroplane industry. The development of the Nieuport and Blériot businesses in this country was hung up for eighteen months and is now only just starting. These four firms, to name no lesser ones, were prevented from supplying much-needed aeroplanes to the R.F.C. in order that the R.A.F. might be glorified. And when the long and cleverly delayed report of the honest and straightforward Monoplane Committee was produced it absolutely acquitted monoplanes, as such, from all charge of being dangerous. I stake my reputation as a practical man that no such acquittal will follow an equally honest inquiry into the products of the R.A.F.

The Two Latest Fatalities.

Let us now consider the latest fatalities. In Captain Downer's case, the evidence is clear that a wing broke at about 500 feet from the ground. Under these circumstances no recovery was possible. Among all accounts of the accident that published by the "Times" alone puts the blame direct onto the pilot. It will be remembered that the aeronautical correspondent of the "Times" has for long been the projector or reflector of the views of the Royal Aircraft Factory officials. Here is his dictum:—"Captain Downer had gone up with the intention of practising rapid spirals and had made a number at a height of between 2,000 ft. and 3,000 ft., when he suddenly began a straight dive earthward. It is possible either that he had become giddy or that he had lost all sense of direction. Both these results of rapid spirals have been known to happen even to pilots who, unlike Captain Downer, possessed great experience in this particular exercise. At all events, Captain Downer continued to dive until at a point some 500 feet from the ground, when his machine had attained a speed estimated by eye-witnesses at 130 miles an hour, he

seemed to realise his situation and made a violent effort to check his descent by flattening out. So great was the force exercised by the control lever that one of the wings appears to have given way under the stress, and the machine fell to the earth. In circumstances such as these it would be possible for a stress equivalent to twelve times the normal load, or twice the intended factor of safety, to be put upon the machine."

This last statement is an almost obviously inspired excuse for the makers of the machine. I need only state that certain practical constructors, who, in addition, possess scientific qualifications at least equal to anything existing at the R.A.F., are of the opinion that it is impossible, even by an *instantaneous* change of direction, to stress the wing of an aeroplane propelled vertically downwards by the force of gravity to a greater extent than nine times the normal load, and, of course, an instantaneous change of direction is palpably impossible. One need therefore seek no further than mere bad design and construction for the cause of Captain Downer's death.

The Victims of Ignorance.

The deaths of Captain Allen and Mr. Burroughs were due to quite different and equally blameworthy causes—for there were two distinct causes of the accident.

The evidence shows that the rudder-post, or, as it is called by some, the rudder-bar, broke. Only a week or so before this accident I pointed out to an officer of the Royal Flying Corps on Salisbury Plain the danger of these unsupported rudder-posts, perched high above the tail and unstayed by wires. They are used on the 50-h.p. Gnome-B.E.s at the Central Flying School, as well as on 203 and 204 (80-h.p. Gnomses) with No. 3 Squadron at Netheravon. He pointed out that the tubular post is filled with wood, and therefore could not break off. It was not my place then to contradict him, but we have since had a lesson.

In the first place such projecting posts must be subject to continual vibration, thus fatiguing the tube, and if, as I believe is the case, there is an acetylene-welded joint at the point where it pivots, the vibration is almost certain to crystallise the welded portion. Very probably the wood loading does not get past the weld, which would cause a lump inside. Even if it did, the wood, continually shrinking and expanding in dry or damp weather, would not fit the tube accurately. The effect would be that the vibration would crack the tube, which would be held in position by the wood so that the crack might not show. Any sudden movement of the rudder-bar would then break the wood off easily, and the machine would be left rudderless.

Let us again take the well-informed correspondent of "The Times" as our evidence:—"The rudder broke off at the rudder post. . . . It seems that the machine was an old one, and the single one of its type. It had been flown for about 18 months and was inspected at the Royal Aircraft Factory in August last."

B.E.4 (later known as 204) was new in June, 1912, and was an advance in many ways on B.E.2. The type was not reproduced, but it had its good points. The staggered planes

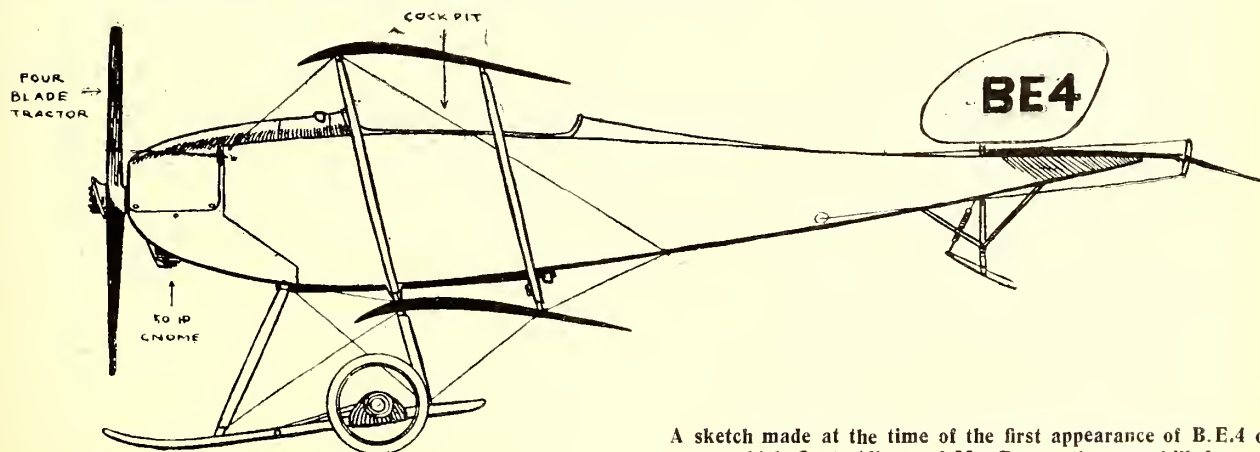
were good for slow landing—though warping staggered planes are bad at best. The high fuselage was comfortable. Only a few days before his death Captain Allen told me how much he liked the old machine to fly, for ease in handling and comfort.

That, however, has nothing to do with her safety as a flying machine. Kindly recall a remark in *THE AEROPLANE* of March 5th—"A machine should be directionally stable, though not easily controllable, if the rudder fell off in the air." The rudder of 204 fell off. She was not directionally stable. Her scientific designers forgot, as in F.E.2, that a rudder is not fixed side area. Cover the rudder in the accompanying sketch and you will see why 204 was uncontrollable.

Contrast with it the early Sopwith mentioned before. In this, when the rudder-post buckled and the rudder lay hard over to the left, instead of spinning uncontrollably round the centre of side area forward, the deep fuselage aft held her so that she simply flew in a circle, and landed perfectly. Taught by this lesson, the Sopwith Co. enlarged the tube of the rudder-post, stayed it with wire, and brought the rudder down below the pivot to balance the strain, and they have had no more trouble.

According to "The Times," 204 was inspected at the R.A.F. in August, 1913. This was after I had in this paper condemned 203 and 204, then with Squadron 3 at Lark Hill, where I saw them, as unfit to fly owing to rotten fabric. Despite the general increase in knowledge of design and construction between June, 1912, and August, 1913, old 204 was returned by the R.A.F. to Squadron 3 with a wood-filled unstayed rudder-post, and without the fin in front of the rudder which should have saved the accident even if the rudder-post broke. There is, indeed, plenty of evidence of "criminal negligence," as Major Brooke-Popham called it at the inquest. Those responsible are the people, if you please, who have "the best brains in the world," and through whom British aeroplane design is to excel. These are the people who base their calculations on the theories of the armchair airmen of the National Physical Laboratory, theories which, according to Mr. Bairstow's recent lecture, agree with Mr. Lanchester's surmises of 1897 or thereabouts. "Best brains," forsooth!

Practically every B.E. is spirally unstable, thanks to that theory. Any of you pilots of B.E.s can try it for yourselves when you are up alone. Kick the rudder hard to the left without banking and then let go, and in most cases you will find the machine will continue to spin, instead of straightening out as a properly designed machine should. You have to hold her with your right foot to stop the spin. Which means that if a rudder-wire goes, or the rudder-fabric splits, or the rudder foot-bar breaks (which is very likely with cross-grained wood at the curve held by aluminium strip), or the rudder pivot jams, you come to the same end as my friend Allen and his passenger Mr. Burroughs, and as young Haynes at Wittering. Yet it should be possible for all those things to go wrong without your being damaged. But that, of course, would not be scientific designing, so no doubt you would rather be among the victims of science than live as pilots of safe aeroplanes built by mere practical men who profit by experience.—C. G. G.



A sketch made at the time of the first appearance of B.E.4 on which Capt. Allen and Mr. Burroughs were killed.

The Army Estimates and Aviation.

BY W. E. de B. WHITTAKER.—(Continued)

For some time after the foundation of the Royal Flying Corps the Military Wing of that body had no definite organisation which could control every branch of its numerous activities. The Finance Department of the War Office had more power of interference than was good for the efficiency of the fifth arm, the civilian heads of the Royal Aircraft Factory influenced to an unhealthy degree the purchase of matériel, and last, but not least, Colonel Seely took too close an interest in the doings of his "daring airmen" to permit the R.F.C. a reasonable prospect of attaining efficiency within the normal span of a man's life. Should any question arise, none knew to whom it might be submitted. No mistake could be laid at the right door, each official who was challenged passing on the blame to some other equally innocent gentleman. In the War Office those responsible for the detailed carrying on of the administrative part of the work could, if necessary, recognise an aeroplane if it resembled the pictures in the cheaper daily prints, and one or two of them adopted a tone to inquirers which successfully stifled curiosity if at the same time it violated the ordinary rules of courtesy.

But the greater part of this confusion has come to an end. In response to pressure, both from inside and outside the Service, and possibly from the use of intellect, those in authority brought into being a Department of Military Aeronautics, with full powers of control, under the Secretary of State, of the administration of the R.F.C. At the head was placed Brigadier-General David Henderson, an officer of the General Staff, who a year or two ago passed the necessary tests for his aviator's certificate on a biplane. Under him were placed several officers possessing aviation experience, and others of the staff were persuaded to acquire a practical knowledge of aviation which cannot fail to be of use to them in their work.

As this is the first year in which a charge appears in the Estimates for this Department, it may be of interest to quote the figures. They are found under Vote 12, Sub-head A: Salaries and Allowances of the War Office:—

Military Aeronautics Directorate.				
	Salary	Min.	Inc. Max.	Estim.
1 Director - General of Military Aeronautics	£		£	£
1 Assistant Director	(a) 1500	—	1500	1500
1 General Staff Officer, 2nd Grade...	(a) 800	—	800	800
2 General Staff Officers, 3rd Grade	(a) 650	—	650	650
1 Staff Captain	(a) 500	—	500	1000
1 Military Clerk (Warrant Officer)	(a) 500	—	500	500
2 Military Clerks (N.C.O.'s)	—	—	—	140
4 Ex-Soldier Clerks, Class B (a week)	—	—	—	200
1 Assistant Accountant, 1st Class ...	(b) 31/6	1/6	42/-	355
2 Assistant Clerks ...	350	15	500	380
Health Insurance Payments for Soldiers and Civilians	45	{ 5 85 } { 7 10s. 150 }		130
				5
				£5660

The (a) implies that the rates quoted include all emoluments, with the exception of Pensions for Wounds and Rewards for Distinguished Service. The (b) rate is in addition to Retired Pay or Pension. Certain ex-soldier clerks are entitled to rates as fol-

low:—Class A, 7s. 6d. a day—6d.—10s.; Class B, 4s. 6d. a day—6d.—6s.

The improvement this Department has wrought in the aviation service up to the present, and the more rapid improvement in the future, is almost incalculable. Whoever carried it through, and that person may be Colonel Seely, is much to be congratulated, late in the day though it may be. The creation of such a Department is, of course, another nail in the coffin of the joint Corps. The original idea implied that there should be one central authority controlling both wings, and taking its officers impartially from either service. All vestige of that idea has disappeared, as certainly as Rameses III or Diane de Poitiers. It is gone, and none much regrets it.

As might be expected from the experience of past years and a realisation of future needs, Vote 10: Works and Buildings, contains a very large provision for the Royal Flying Corps, a fifth of the entire Aviation Estimate, £201,000.

Of this sum, £157,000 is accounted for in the erection of buildings and barracks. The remaining £44,000 is hidden away in the sub-heads dealing with the hire and purchase of land and so on.

Two items to be expected are those dealing with extensions to the Royal Aircraft Factory, totalling altogether to £16,550, and the erection at Aldershot of accommodation for Royal Flying Corps and Flying Stores Depot another £59,950.

As to the Aircraft Factory extensions, they are more or less natural, when one considers the policy of that establishment. If these Government works are to build aeroplanes for the service, then the accommodation must be provided, and after deducting £10,000 for the building of workmen's cottages the sum does not appear unduly large.

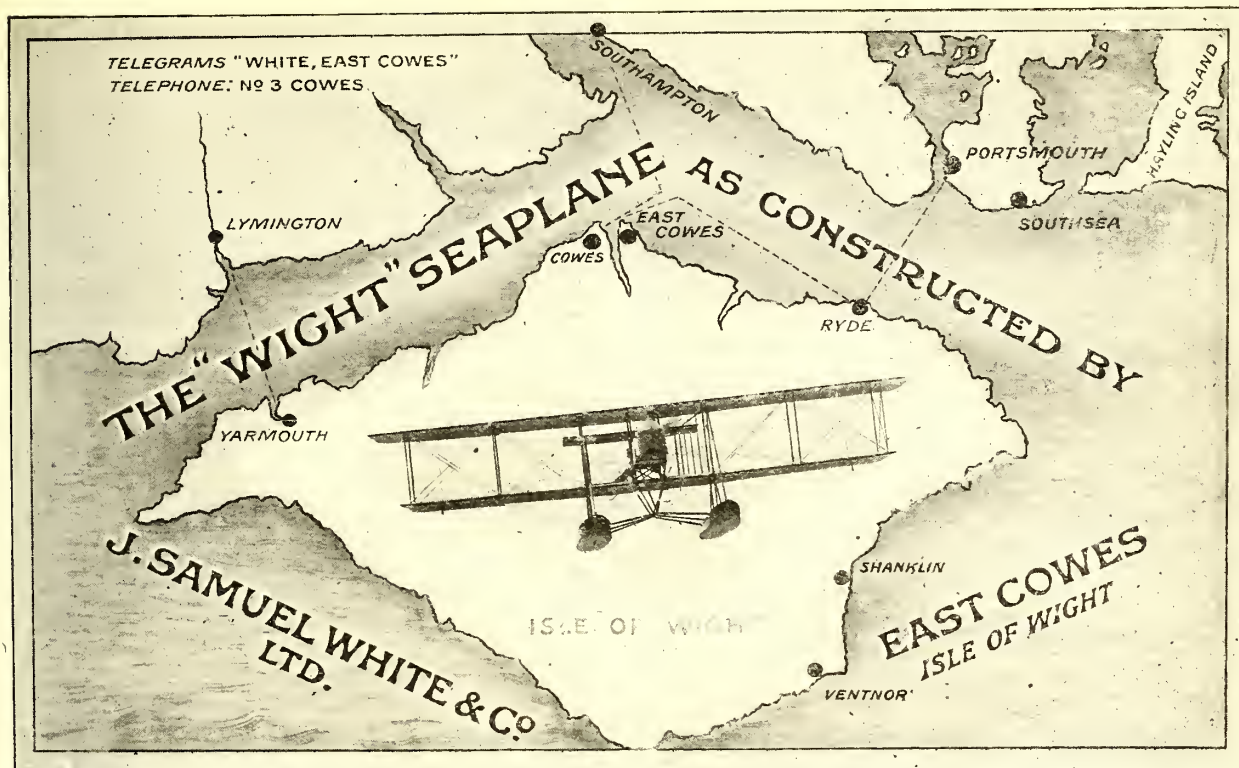
The total estimate for the work of accommodating the Royal Flying Corps at Aldershot was originally £62,000. It has now become £167,500—a very large increase on the former figure. The earlier estimate demonstrates the timorous policy of those in power. The R.F.C. has not increased its nominal establishment, save in the number of reserve aeroplanes, since its formation, yet the idea of necessary accommodation has nearly trebled in about eighteen months. It may, on the other hand, have been a clever piece of window-dressing by which last year's estimates were kept down. Of this amount of money, less than one-third comes into this year's vote, £49,300 will have been spent by the end of the present financial year, and £58,250 is yet to come.

Apparently the standing charge for the erection of sheds and barracks for a squadron of the Royal Flying Corps is £45,000 irrespective of local conditions.

At Farnborough the accommodation includes sheds for two squadrons already on the point of completion, and barracks for the rank and file.

At Netheravon sheds and quarters for two squadrons are nearly finished, and another £14,000 is asked for this purpose in the present Estimates. Up to the end of this financial year about £61,000 will have been spent. The original estimate of money required for completion was £60,000, so here, again, we get an increase of £15,000. Expenditure on buildings for the R.F.C. on the Plain is certainly less wasteful than deciding on a flying base in some other part of England, and then changing at the last moment. The Plain will always be the centre of practical work so far as the Army is concerned.

Two new stations are being laid down this year, both of them in very doubtful positions. Dover is to have one squadron and Portsmouth another. Both stations will ultimately cost £45,000 apiece, but for this next year £41,000 will be spent on the first and £15,000 on



STAND 67 OLYMPIA.

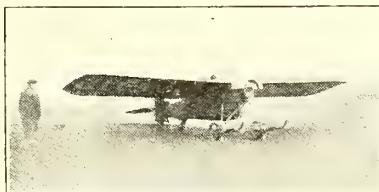
STAND 67 OLYMPIA.

CLÉMENT-BAYARD.

AEROPLANES, SEAPLANES, and AIRSHIPS.
MOTORS FOR ALL TYPES OF AIRCRAFT.

Specialists in all-steel construction of Aeroplanes & Seaplanes.

**Single - Seater
Armoured Scouting
Monoplane.**



**Weight 375 Kilos.
100 h.p. Gnome Motor.
Speed 125 Kil. per hour.**

As Supplied to the French Army.

Works: QUAI MICHELET,
LEVALLOIS, PARIS.

British Representatives :
DELACOMBE & MARÉCHAL,
166 PICCADILLY, W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

the second. Though one is by no means a believer in the theory that the coasts should be defended by the Navy, and that the Garrison Artillery should be made over in so far as coast defence is concerned, to the Navy, yet it would seem reasonable that coastal stations of high strategic importance should in so far as aerial matters are concerned be entrusted to the Naval Wing. It will no doubt be essential to have seaplanes stationed at this point, and, consequently, it seems unreasonable that the other Service should interfere at all. The great expense of erecting barracks should be taken into account for, if a change is made later, it is not likely that the existing, or about to be existing, station will be of any use to the incoming naval squadron. For one thing it will not be close enough to the sea for practical purposes. The same arguments apply to Portsmouth as a centre for aviation. It would have been far better, if the general principle of handing over aerial coast defence to the Navy holds good, to have spent the money now to be voted on the formation of flying stations at York, Chester, Colchester, Edinburgh, and Dublin, or at some suitable place in each command. At present neither the Northern Command nor the Western possesses a single aeroplane, nor even an acre of official landing-ground. Nor has the Eastern Command.

Another £10,500 is to be voted this year towards the completion at a total cost of £80,400 of the Central Flying School. This total estimate has also suffered an increase, as originally it was placed at £40,000. The Navy pays half the cost for no good reason save that the Gospel of Brotherly Love which brought the R.F.C. into existence has not even yet followed the dodo into the blaze of retirement.

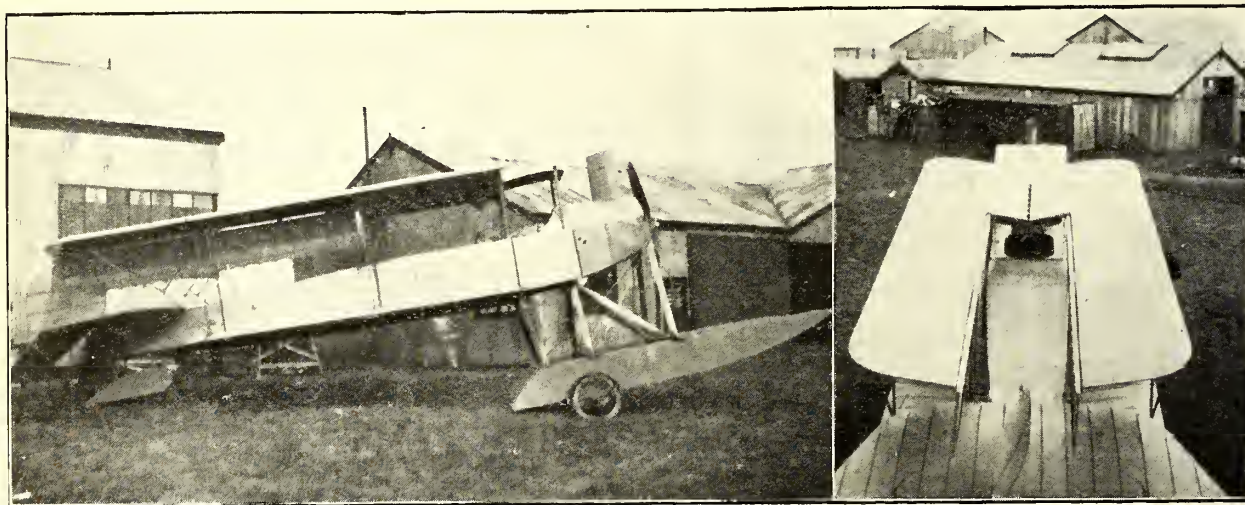
The odd £44,000 in Vote 10, which is left unaccounted for, may be set aside for unforeseen contingencies, or, on the other hand, the purchase of land and the renting of suitable landing places may have something to

do with it. At the present moment the Royal Flying Corps is in greater need of flying grounds than of anything except aeroplanes. If one must judge by Colonel Seely's speech on his introduction of the Estimates one must look to the disinterested sacrifice of the farmer and the landowner to provide the pilots of the aviation Service with landing-places. A report will be made by one of these that he has a suitable field, and an officer will at once be sent down from the War Office to make an inspection. No payment was mentioned. But payment or no payment this is not the right way to get local aerodromes or landing-grounds. The authorities should first select their ground on the desired routes and then buy or rent it from the owner—by force if no other means prevailed. Gentle persuasion never does anything in matters of this sort. One would have liked to see a vote of £100,000 set aside this year for that purpose.

The establishment of the Central Flying School is this year £28,840, a rise of over £10,000 in the year. This is largely due to increases in the personnel during the year. A large increase in the number of air-mechanics of both classes has been made, and, in addition, there are nine Flight Sergeants (a new post), and seven Corporals, as against none last year. There is also an Assistant Commandant and a Transport Officer. These and other small changes account for £5,700 of the increase. The remainder can be found under the Quartering, Transport, etc., and Supplies and Clothing votes.

The horses and mules attached to the Royal Flying Corps have fallen in number from 25 last year to 5 this year!

The establishment of the Royal Flying Corps and of the Special Reserve added together show an increase of £44,800 over last year. This is perfectly normal and does not need comment.



The New Folding Seaplane in side view and plan when closed.

Flying at Cambridge.

Paragraphs have appeared in several papers to the effect that an aviation school is shortly to be formed at Cambridge. One gathers that, unfortunately, there is some hitch about starting the school, as one of the originators of the scheme seems to have changed his mind. Doubtless someone else will take his place, for the school is bound to be a sound proposition.

It is understood that three school biplanes are to be supplied by Vickers, Ltd., and being of Vickers workmanship they will certainly be as safe as anything of their type. The country round Cambridge is ideal for flying, and a number of men of the University are keen on starting as soon as

possible. The University authorities have given their official consent to the school and it should be a great success.

Competition at Brooklands.

On Easter Monday an aeroplane speed handicap will be held at Brooklands, the winner to receive 50 sovs. or cup, at option, the second prize to be 25 sovs. or a cup, and the third 10 sovs. or cup. Details will be given later.

A Correction.

Despite illustrations to that effect in our contemporaries, it is not a fact that Messrs. Martin and Handasyde are manufacturing Blériot monoplanes, either under licence or otherwise; they are sufficiently busy on machines of their own design.

200 H.P.

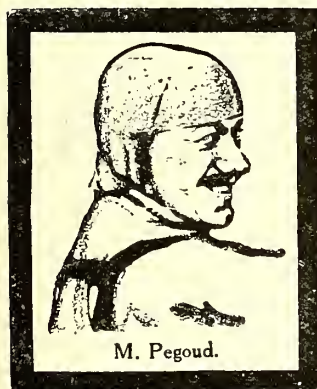
The New Isaacson Air-cooled Rotary Engine is to be seen on Stand 70 AT OLYMPIA.

A larger edition, in power and reliability, of the famous 70-H.P. Isaacson aircooled radial, which has given 6 months uninterrupted satisfaction on the Flanders Biplane at Brooklands.

Particulars and Prices from :

The Isaacson Radial Engine Co., Ltd.
2, East Parade, Leeds.

The Eastbourne Aviation Co., Ltd.
Agents at Olympia.



M. Pegoud.

MEN WHO "LOOP,"

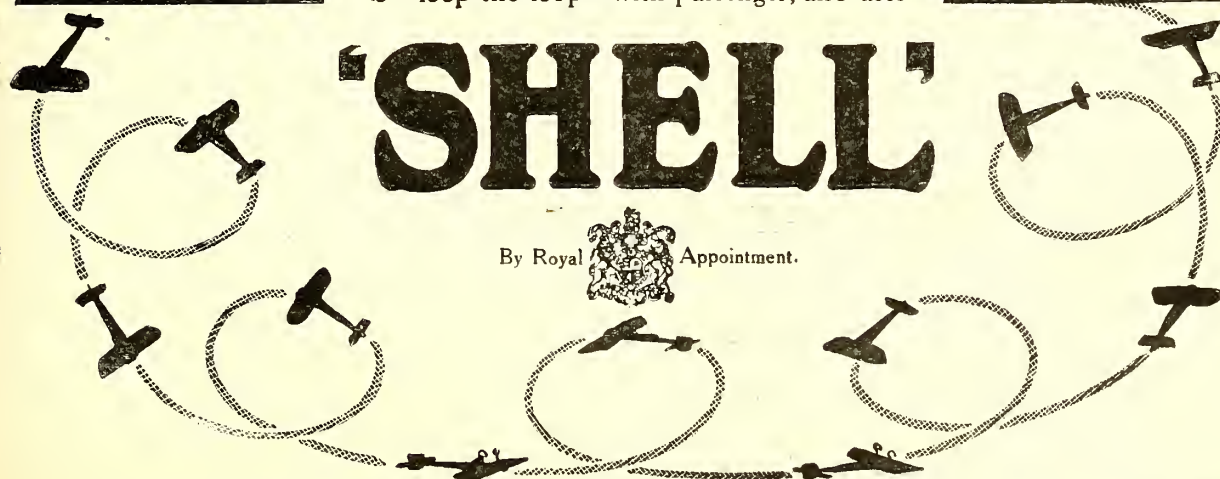
fly upside down, and display their skill in daring evolutions take no risks regarding motor spirit. It is significant, therefore, that in his sensational flights at Brooklands M. Pegoud used "Shell." Mr. Hamel, the first aviator to "loop-the-loop" with passenger, also uses



Mr Hamel.

'SHELL'

By Royal Appointment.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

An Invitation to the Beatty School of Flying

■ ■ ■ ■ ■ ■ ■ ■

It is impossible in the short space of an advertisement to explain fully the advantages of my system of training.

Intending pupils should write for full particulars or should visit the school.

When the training of my pupils is completed, they have not merely taken their certificates, they are trained pilots.

Tuition on Handley Page Monoplane & Wright Biplanes
£75.

Special terms to Naval and Military Officers.

(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

THE HALL FLYING SCHOOL

Tuition A VRO BIPLANES
given on B LEROT MONOPLANES
 C AUDRON BIPLANES

LEARN AT A BRITISH SCHOOL !

Fees, including everything, 61 guineas.

Write for free particulars to HALL AVIATION CO., LONDON AERODROME,
HENDON, N.W.

FOR THE LATEST
AND BEST

DOPES

SEE THE



CELLON

Stand
No. 104
Olympia

CELLON, LTD.

17, Old Broad Street,
LONDON, E. C.

Telegrams—"AJAWB, LONDON"
Telephone—5359 LONDON WALL

LOOPING
THE LOOP

BY

B. C. HUCKS.

This is a reproduction of the striking
16-sheet Poster, in six colours, pro-
duced by The B. C. Hucks Company
to advertise their demonstrations.

Demonstrations of
Looping the Loop by

B. C. Hucks

Mr. B. C. Hucks is the first British
Airman to Loop the Loop and fly
upside down, and is always a
powerful attraction wherever he is
announced to give his looping
demonstrations.



The B. C. HUCKS Company

Expert Organisers of Aviation Meetings

166, PICCADILLY, LONDON, W.

The B. C. Hucks Company invite inquiries from those
who wish to promote a Demonstration of Flying in any
part of the country. Their experience in the organisation
of successful Flying Meetings is unique, and they will
willingly give advice and detailed information on request.
Address your inquiry to The B. C. Hucks Co., 166, Piccadilly
London, W. Phone Regent 2942.

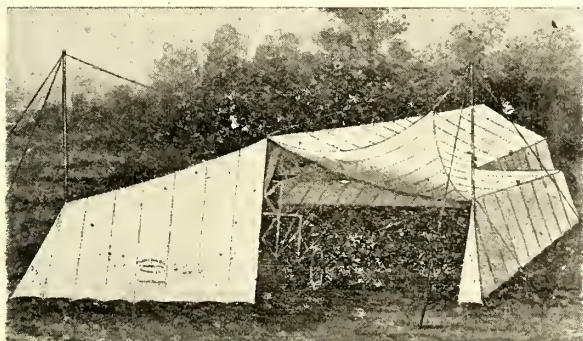
TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane
is one of **PIGGOTT'S PATENT AEROPLANE TENTS.**

Pattern No. 3, suitable for a Bleriot Monoplane. Price in water-
proof canvas £30.

Weight under 5 cwt. Poles socketed. Can be carried in the back
of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.
Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

PASHLEY BROS.

SHOREHAM AERODROME,
SUSSEX.

Tuition for R.Ae.C. BREVET.

BEFORE JOINING ANY OTHER
SCHOOL, APPLY FOR PARTICULARS
OF OUR

Special Reduced Terms

. . . and . . .

New Concessions to Pupils.

Passenger Flights.

ENGINES AT OLYMPIA.**Argylls, Ltd., Alexandria, Scotland.**

One of the few really new engines on show is that manufactured by Argyll's, Ltd. The successes made by the 15.9-h.p. Argyll car in record attempts at Brooklands and the consistency of its running on long tests made it seem likely that an effort would be made to produce an aeroplane engine of equal efficiency and reliability. Keeping the single sleeve-valve design, which has in the past two or three years brought so much prosperity to the firm, a 6-cylinder engine has been produced of 125 mm. by 175 mm., rated at 120 h.p. at 1,200 revolutions a minute. The cylinders are all forged from steel with steel water-jackets. Two Zenith carburettors are fitted, each feeding three cylinders through two three-branch copper induction pipes. One Bosch magneto is fitted firing two plugs in each cylinder. Lubrication is pressure-fed with additional troughs for big end bearings. The engine is thoroughly well made, but strikes one at present as being rather heavy. The weight including radiator is 600 lbs. The price is £1,050. On tests of 6 hours' duration the engine has consistently given 130 h.p.

The valve mechanism is utterly impossible to describe, and can only be understood by seeing it in operation. The Argyll Co. have very considerably placed on their stand a car engine of similar type in which the cylinders are carved out so that the working of the valves can be seen, and visitors to Olympia should not fail to make themselves familiar with the operation. The weight comes out a little more than 4 lbs. per h.p., so that the engine is not phenomenally light, but judging from the reliability shown by the car engines, one can well afford to carry a few pounds extra for the sake of absolute reliability. The sleeve valve engine certainly has a great deal to recommend it, as there is no valve truing to do, and there are no valve springs or stems to break, and as Mr. Matthew points out, the diminution in the number of parts not only makes for reliability, but actually brings the weight to about the same as that of a poppet valve engine constructed in the same way. The engine is shown exactly as she came off her last tests, and has not been taken to pieces or touched up in any way. One awaits with interest its first trials in an aeroplane.

The Austin Motor Co., Northfield, Birmingham.

The Austin Company show an example of the 90-h.p. Curtiss motor of the type elaborately described in *THE AEROPLANE* on several occasions. It is an 8-cylinder V, giving its stated

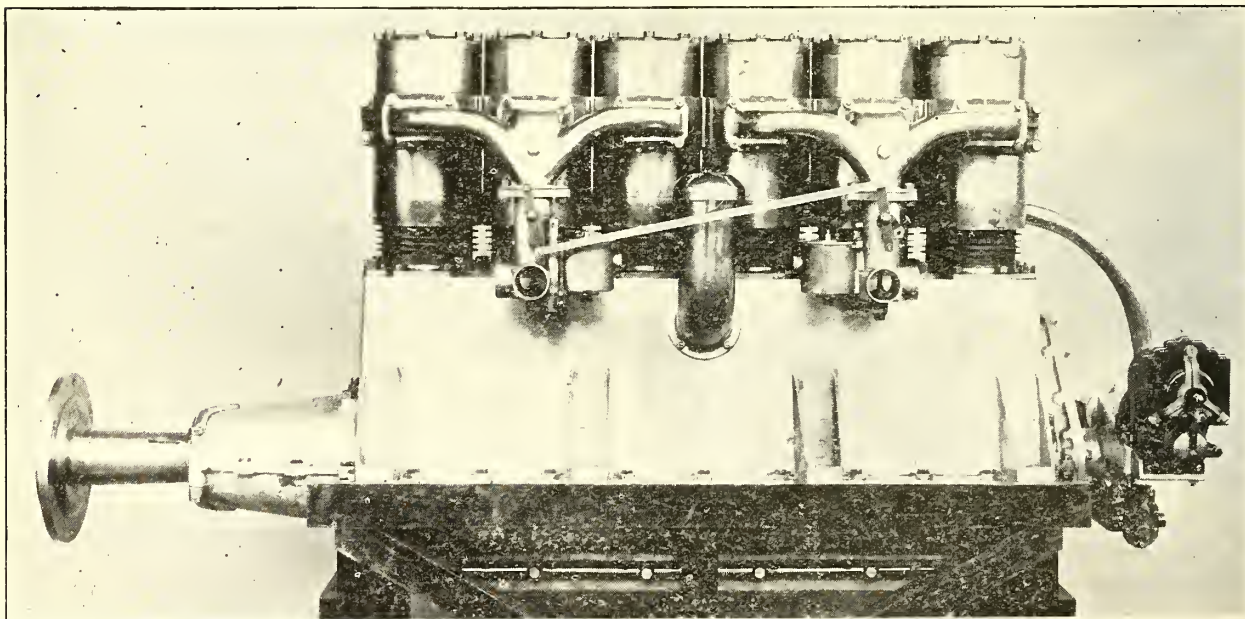
power at 1,250 revolutions a minute. The cylinders are forged separately of steel and fitted with aluminium water-jackets. Each is held down to the aluminium crank-case by four steel rods bolted to an X piece resting on the cylinder head. The pistons are of cast iron and are by no means as light as might be expected for the speed and power of the engine. The valves are in the cylinder head, and each set of two (exhaust and inlet) are operated by one rocker-arm working by a push rod from a cam-shaft lying between the two sets of cylinders. The carburettor is a Schebler with wonderful adjustabilities, as the writer once found out when driving to Cambridge. Water-circulation is maintained by a pump placed at the end of the crankcase. The whole engine is built and finished with that attention which only the very best engines deserve. There is no more consistently efficient engine in the Olympia Show.

The Austrian-Daimler Co., Ltd., 112, Great Portland Street, W.

On this stand are shown two Scottish-built Beardmore Austro-Daimler aeroplane engines, one of 90 h.p. and one of 120 h.p. The work is no less admirable than those turned out in the Austrian factory, which is a high compliment to British work. Practically no change has been made in the design of these engines since the autumn of last year when the 90 h.p. was brought into line with the larger model by the adoption of some of the refinements previously confined to that type. The Bosch lubricator feeding oil to the engine at a pressure of 1,000 lbs. is now fitted to both models. The plugs and magneto are fitted with waterproof coverings in a very neat manner. The cylinders, as stated in *THE AEROPLANE*, some months ago, have been considerably strengthened at the base and it is now a practical impossibility for one to blow off. Both models are fitted with two carburettors, each feeding three cylinders through copper-induction pipes. The larger engine has two magnetos driven by bevel gearing from the end of the crank-shaft. On the smaller engine only one magneto is fitted, the water-pump occupying the place of the other magneto. All the oil pipes are of steel calculated to stand the high pressure attained, and are all fitted outside the engine that adjustments may be readily made if necessary. The superficial finish of both engines is beautiful.

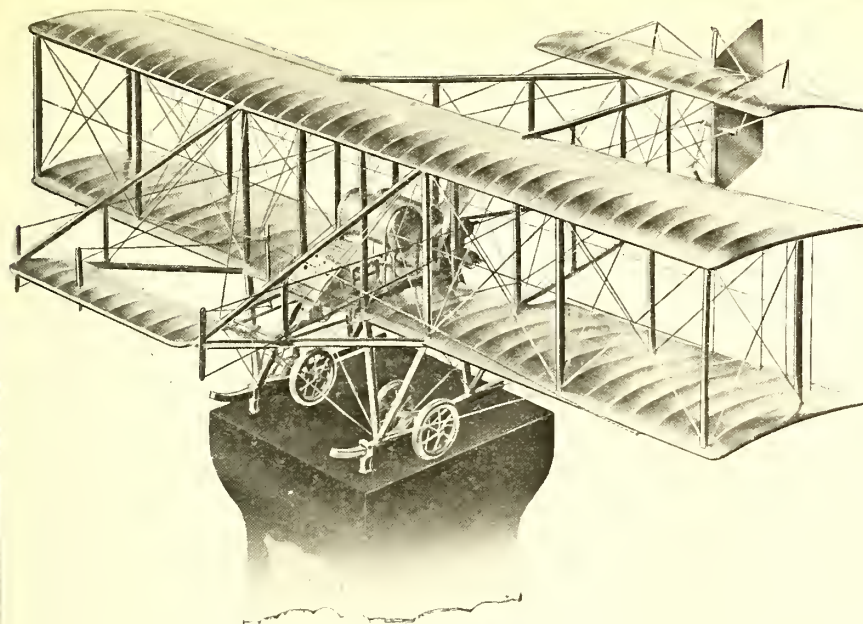
Clement-Bayard, c/o DelaCombe and Maréchal, 166, Piccadilly, W.

The Clement-Bayard 250-h.p. aero-motor was originally intended for airship work, and has so far been used solely for that purpose, but one is to be fitted to a new all-steel Clement-



The New Argyll, single sleeve-valve aero-engine, 120-h.p. nominal, 130-h.p. on test at 120 r.p.m. (inlet side).

Models



Mappin & Webb LTD.

2, QUEEN VICTORIA STREET, E.C. 158-162, OXFORD STREET, W.
220, REGENT STREET, W.

Paris: 1, Rue de la Paix. Lausanne. Rome. Nice. Biarritz. Buenos Aires.

The Company specialise in the production of Silver scale Models of Aeroplanes, correct in detail and of fine workmanship.

Photographs and Estimates submitted free.

Representative sent to any address to take particulars.

AERO AND MARINE
EXHIBITION, OLYMPIA
MARCH 16th to 25th



FOR EVERYTHING
BUT THE AEROPLANE
SEE STAND NO. 45

Dunhills AVORITIES

- ☞ At Stand No. 45 we are showing a representative selection of our well-known aeroplane accessories.
- ☞ The latest and best features in aviation equipment are to be seen at this Stand—accessories of all kinds, besides a good range of clothing items.
- ☞ Take a note of the Stand number, for you are certain to be interested in our exhibits.

A card will bring you our Aviation Catalogue.

**2, CONDUIT STREET, W.
359-361, EUSTON RD., N.W.**

City Branch: 42-43, Lombard St., E.C.

MANCHESTER: 88, CROSS ST.

GLASGOW: 72, St. VINCENT ST.

Bayard seaplane, and is certainly worth the attention of those requiring an engine of large output for aeroplane work. The motor is of the vertical type with six cylinders, each a one-piece casting of steel.

Overhead valves, set at 45 degrees in the cylinder heads, are operated by an overhead cam shaft, which is driven through skew gear, a universally jointed vertical shaft, and a bevel drive. Each valve rocker is in two parts, the end operated on by the cams being separate from that which actuates the tappets, and the two parts are pivoted on a common pin. The two faces of these two parts opposing each other are finely serrated, and between the two a disc similarly serrated on both faces is fixed. The relative position of the two parts is thus susceptible of a very fine adjustment, enabling accurate adjustment of tappet clearance to be quickly and simply made, and at the same time giving a secure through drive of the rocker as a whole.

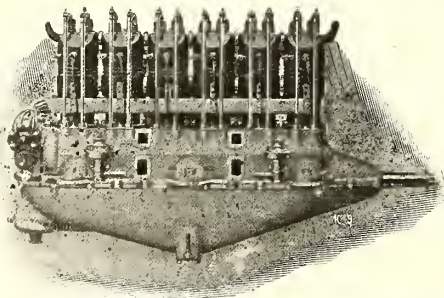
The cylinders are copper-jacketed, and the water space extends round the exhaust valve cages, from the domes of which the hot water leaves the cylinder to the radiators.

The crank case is of cast aluminium, split on the crank shaft centre line, while beneath the lower half of this a beaten-out sheet aluminium bottom is fitted with a sump under each throw of the crank. Water pump and magneto are on opposite ends of a cross shaft driven off the rear end of the crank shaft by skew gears, the oil pump at the same end being driven off a vertical shaft, apparently a prolongation of the vertical shaft driving the cam shaft. The magneto is fitted with a helicoid clutch, which is slipped in or out to advance or retard. That is, the actual timing of the magneto is changed, and not merely the position of break relatively to the magnet, and the magneto is always working at its best position wherever the spark. Bosch dual ignition is fitted, and two spark plugs per cylinder are employed.

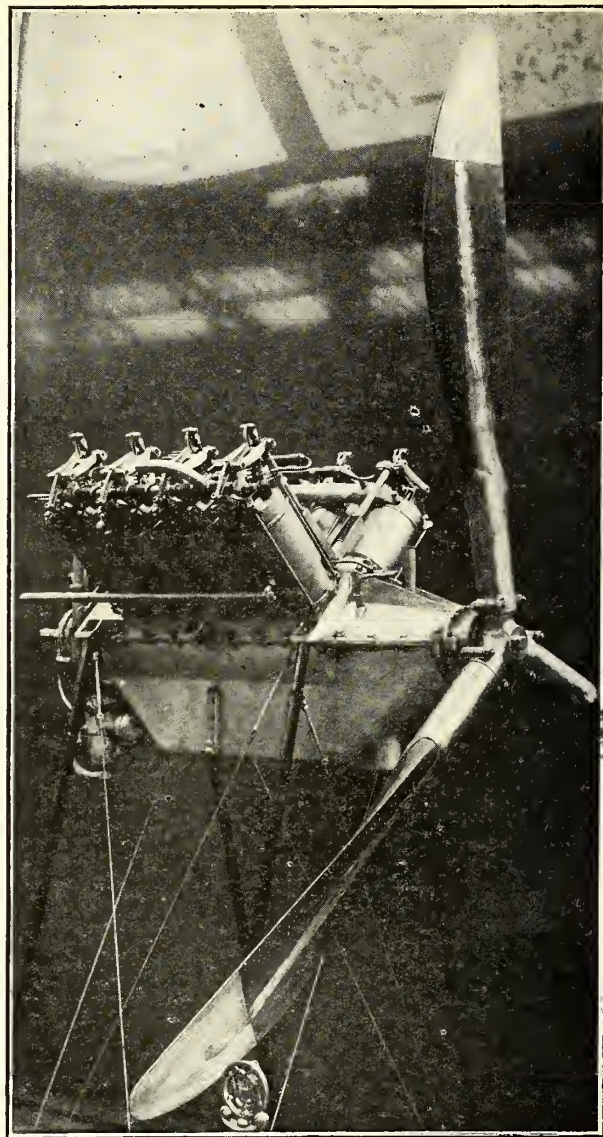
Two Clement-Bayard carburettors are used, each feeding three cylinders. The bore and stroke are 155 mm. and 200 mm. respectively, and the engine develops 262 b.h.p. at between 1,300 and 1,400 r.p.m. The weight of the engine (without radiators) is 375 kilos.—about 830 lbs.—including a useful-looking flywheel, and with radiators and water complete the weight works out to 4½ lbs. per h.p. The engine is extremely compact, and of relatively small overall dimensions, considering the large power developed, and of a form admirably conceived to be enclosed in a stream-lined body, and the external finish is of the best.

The Brompton Motor Co., 78. Brompton Road, S.W.

As a representative of the types of engine which have been putting up the astounding duration records in Germany lately, the 85-h.p. Benz aero-motor is likely to come in for special attention. Of the six-cylinder vertical type, with steel cylinder and welded-on jackets, the engine presents a very clean and unostentatious appearance. Valves are overhead, operated through rockers and push-rods by a side cam shaft, within the crank case. All valve springs are plain and heavy spirals outside the valve cages and away from all risk of overheating.



On the opposite side of the crank case to the cam shaft a pair of carburettors are built into the crank case, and draw their air from the inside thereof, ingress thereto being provided by ventilators. Inlet pipes cast in aluminium of neat design and of a form likely to ensure uniform gas distribution connect each carburettor to its set of three cylinders. Two magnetos are driven through a skew gear by the opposite end of a



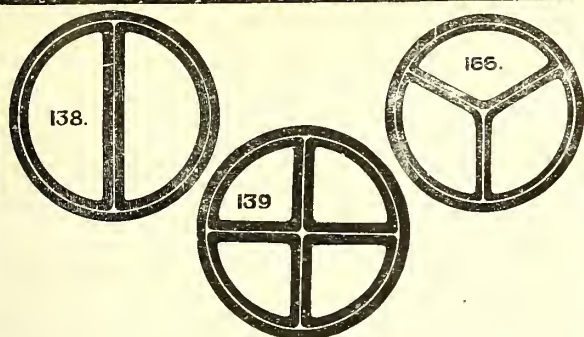
The Curtiss Engine (100-h.p.) shown by the Austin Motor Co. for White and Thompson, Ltd., of Bognor.

cross shaft at the rear end of the motor, and the circulating pump is operated by a vertical shaft projecting downwards. The bore and stroke are 106 mm. and 150 mm. respectively, and the total weight of the motor is 365 lbs.

The Dudbridge Iron Works, Stroud, Glos.

On this stand are shown examples of the Salmson (system Canton-Unné) motors of various sizes and types. All are of the fixed radial water-cooled type associated with this name, which has been illustrated and described on various previous occasions. To attempt to give in any sort of detail an account of the various points of interest which characterise these various engines would entail several pages of this number, concluding with the words "to be continued in our next," and therefore the best advice to the interested reader is to call at the stand and see for himself. Points common to all the types shown are steel cylinders and crank cases, copper-water jackets, the special "cradle" type of valve spring used, and the general appearance of robustness without clumsiness.

Particularly impressive is the type "D" engine of 300 h.p., with vertical crankshaft driving the propeller shaft through a "built in" bevel gear. The excellent performances stand-



We have made application for a British Patent to protect the manufacture of tubing as illustrated above, and made up with one, two, three, four or more liners.

HAVING HAD TROUBLE, you naturally want something on which you may rely—and that is No. 138.

VIBRATORY TESTS carried out with plain gauge tubing of equal weight and with No. 138 go to show every time the vast superiority of the latter, which has five, six, seven and more times the "life."

Under no circumstances have the liners been broken or fractured in addition to the outer shell.

WEIGHT FOR WEIGHT, it is the strongest and "liveliest" tubing designed or produced.

THE LINERS may be of half-round or special sections of solid drawn steel tubing, or formed of rolled Swedish

"APOLLO"

**THE FIRST FOR
STRENGTH and SYMMETRY.**

No. 166 is said to be **33%** stronger than ordinary tubing.

No. 138 is weight for weight, **STRONGER STILL.**

No. 139 is for use where weight is no object and exceptional strength is necessary.

steel strip, and the outer casing is drawn tightly over the combined section.

TRY THIS TUBING for yourself in a motor-cycle frame, by replacing the tube that has let you down in the past, or have it built into your next "test" machine. This may be done at our expense by arrangement.

TRY IT ALSO in a motor-car handle-bar stem and feel safe.

LET US HAVE YOUR SPECIFICATION showing your usual gauges, diameters, lengths, and quantities. We would like to quote you for anything tubular, up to and including plated work, in a quality that cannot be beaten.

ACCLES & POLLOCK, LIMITED

**OLDBURY,
BIRMINGHAM**

OLYMPIA, MARCH 16th to 25th, 1914.

THE INTEGRAL PROPELLER COMPANY, LTD.

(L. CHAUVIÈRE)

Invite your inspection at **STAND No. 21** Of their world-renowned

INTEGRAL PROPELLER.



HOLDS THE WORLD'S RECORDS FOR

SPEED, HEIGHT, DISTANCE AND DURATION

We are also exhibiting Chauvière's

VARIABLE PITCH PROPELLER FOR DIRIGIBLES

Standard metal bosses fitted with our quick-exPELLing nut, combining labour-saving with guaranteed safety.

THE INTEGRAL PROPELLER CO., LTD.

307, Euston Road, N.W.

Telegrams: "Aviprop (Eusroad), London."

WORKS: 1b, ELTHORNE ROAD,

Upper Holloway, N.

Telephone: North 912.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

ing to the credit of this mark of motor, and their popularity with builders of seaplanes, render further tribute to the excellence of design and construction superfluous, and now that their construction is being undertaken in this country by a firm of such experience and standing in the internal combustion engine industry, as the Dudbridge Iron Works, one may expect them to become still more popular with British constructors and pilots.

The Gnome Engine Co., 47, Victoria Street, S.W.

The Gnome Engine Company are showing three engines and various parts. Two of the engines are of the type familiar to all who have taken any part or interest in aviation during the past five years, and are respectively an 80-h.p. 7-cylinder and a 100-h.p. 11-cylinder. These have not altered in any way from those exhibited last year. The other engine shown is a 80-h.p. single-valve (monosoupape) engine, which only differs in external appearance from the older engines in that the cylinders are more bulbous at the foot and the exhaust gear is simpler if no more effective. Here again description is vain, and those who are interested should come and inspect the engines for themselves.

The Green Engine Co., Ltd., 166, Piccadilly, W.

Both types of Green engine shown (70 h.p. 4-cylinder and 120 h.p. 6 cylinder) are built on identical lines, and except in respect to actual dimensions one description will apply equally well to both types. The cylinders are each a single steel casting, with the boxes for the valve cages and the passages for the gases integral with the cylinder proper. A spun copper water jacket of cylindrical form, cut out for the valves and the inlet and exhaust ports, is slid over the top and packed at the various exits and entrances by brass rings, shaped to fit, which are screwed tight up and clamp the edges of the various apertures against machined surfaces on the cylinder casting itself. The bottom joint is made by pressing the jacket over a rubber ring fitted into a groove in a flange at the bottom of the cylinder forming a water-tight joint, which allows perfectly for expansion and contraction of the jacket. These cylinders (4 or less as the case may be) are set vertically, and somewhat *desaxé*, on the cast aluminium crank case, and are secured by bolts, of which there are really only three per cylinder. As, however, all the bolts except one per cylinder actually hold two cylinder flanges, each cylinder is held at five places, and the bolts at four of these points of support continue downward and act as crank shaft bearing bolts as well. Hence the aluminium crank case takes none of the stress of the working stroke but merely serves to stop the cylinder falling in on the suction stroke or when at rest.

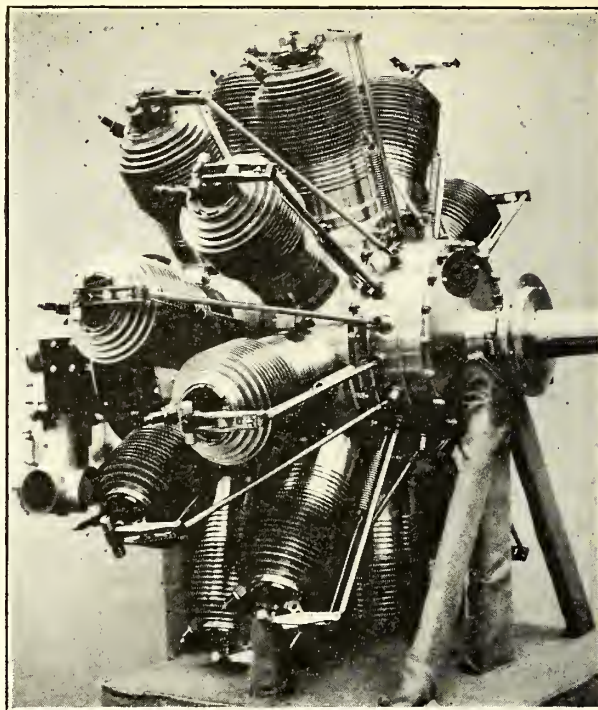
Both valves are vertical, carried in easily removable cages in the cylinder head and operated by an overhead camshaft driven through bevels, a vertical shaft, and a skew gear. Magneto and circulating pump are driven off a cross-shaft at the rear end, and the oil pump by a downward prolongation of the vertical shaft which drives the cam shaft. The two engines are both of 140-mm. bore, the stroke of the 70 h.p. being 146 mm., and that of the 120 h.p. 152 mm. Both develop their full load output at about 1,175 r.p.m.

These engines are noted for their extremely low fuel and oil consumption, and engines of this make have won British Michelin competitions, the Patrick Alexander engine prize, and one was used by Mr. Hawker in his Round Britain seaplane attempt last summer, to mention only a few of their many successes.

The Isaacson Radial Engine Co., Boyne Works, Leeds.

As an example of accurate, finely-finished engineering work, the 200-h.p. 18-cylinder air-cooled rotary engine, shown on the stand of the Eastbourne Aviation Co., may safely challenge comparison with the work of any foreign engine makers, and the extremely fine results obtained from the smaller fixed radial of the same general design authorises the expectation that in point of view of performance it will also hold its own. In its general lines the engine is necessarily reminiscent of all the successful types of rotary motors.

The two sets of nine steel cylinders (turned with their cooling fins from the solid) are screwed into a cylindrical steel crank case, the threaded portion being slightly tapered, and



The 200 h.p. Isaacson Rotary at Olympia.

are locked by steel wedges, which fit accurately between adjoining cylinders. Exhaust valves balanced against centrifugal force are mounted on each cylinder head, operated by push-rods from the cam case on the front of the crank case.

The exhaust valve springs are plain spirals mounted in front of each cylinder on light pull-rods, and hence clear of all hot gases and consequent risk of overheating. The inlet valves are fitted in the head of the pistons. They are automatic and so designed that they function correctly, though with some slight decrease of power, without their springs. Gas is admitted to the crank case by the hollow crank shaft. Two magnetos and an oil pump are mounted on a back-plate to which the crank shaft is secured, and forced lubrication is fitted for the front ball race on the engine nose.

These engines are made in two sizes and two types, the well-known 60-h.p. radial being also built to rotate, and the rotary 200-h.p. being identical in all important features with the 160-h.p. fixed 18-cylinder radial. The difference in h.p. being accounted for by the superior cooling of the rotary type.

Milnes-Daimler Mercédès, Ltd., 132, Long Acre, W.C.

The Mercédès aero engine, shown on the Milnes-Daimler stand, should be one of great interest to aviators visiting Olympia, as with motors of this model the majority of the great duration and distance flights of recent months in Germany were made. The high reputation always held by the Mercédès firm shows no sign of fading to-day. The engine shown is of 100 h.p., and is a vertical 6-cylinder of the type popular in Germanic countries. The cylinders are cast in pairs and are 120 mm. by 140 mm. bore and stroke. Cylinders and water-jackets are steel in one piece. The valves are overhead operated by rocker-arms from an overhead cam-shaft driven by bevel-gearing and a shaft from the crank-shaft. A Mercédès double carburettor is fitted feeding the cylinders through two three-branch copper induction pipes. The crank-case is of aluminium, and is ventilated by several tubes and cowls. The water circulation is ensured by a gear-driven pump. All the lubrication tubes are of steel and are outside the engine. One pipe runs along the top of the camshaft, oiling that at each main bearing. The general finish of this engine is as good as any other in the Show. The weight is under 450 lbs., and the price £585.

STAND N^o. 73

AEROPLANES of any description built from customers' designs.

OXY-ACETYLENE WELDING

in all its applications our Speciality.

ENGINE PLATES AND HOUSINGS

made for any engines.

FUSELAGES, RUDDERS, SEATS

made in steel tube.

TANKS with Taps & Fittings

INCLINO-
METERS,

REV. COUNTERS,
DOPE, CANVAS,
PURE CASTOR OIL
IMPORTED.

WIRE and CABLE. ∴

Strainers, **BOLTS**, Eye-bolts and Plates, of the highest tensile strain. Wire Ferrules, Cable Fasteners, Thimbles and all other big and small

ACCESSORIES

OMNIA WORKS:

Vardens Rd., Clapham Junction

Telegrams—"Aeromnia."

Telephone - B ttersea 1987.

S.W

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Renault Engine.

Renault Motors, Ltd., are showing three engines—two 70-h.p. 8-cylinder and one 100-h.p. 12-cylinder. A sectional model of the 70 h.p. is also shown. These engine have not altered in any material way from those of previous years. The finish has improved a little if the show models are anything to judge by. The carburettor is now heated by a pipe from the exhaust box. If memory serves aright there is also a change in the form of the induction pipes. The 100-h.p. engine has two magnetos and the 70 h.p. only one.

The Statax Engine Co., 1, Quality Court, Chancery Lane, W.C.

Were compactness and small space occupied the only requisites for an aero-motor the Statax rotary engine would probably defy competition, but having no knowledge of its actual performance, one can only hope that its other qualities will be as favourable as these two. The 40 h.p. 5-cylinder motor shewn is of that species of rotary engine in which the cylinders and the equivalent of a crank shaft lie parallel to each other. In this case all five cylinders are within a cylindrical casing, with the cylinder heads and exhaust valves all at one end of the casing. The valves are operated very directly by push rods from a cam casing at this end of the motor, and the piston rods drive directly onto a groove in the edge of a disc set on the shaft at an angle. The piston being at the top of the stroke, the piston rod "big ends" may be considered as at the top of the slope of the disc and on the application of the explosion pressure will try to slide down this slope, and to do so have to go round the ring on the shaft and drag the cylinders with them. Obviously, the main difficulty to be met with in this type of engine is in the sliding couple consisting of the "big end" and the ring, as any back lash here must lead to curious happenings. Inlet valves are apparently in the pistons, gas entering the rotating chamber through the hollow shaft. Magneto and oil pump are mounted on a back plate

and driven in the fashion normal to rotary motors and ignition current is supplied to the plugs in the usual way through a rotary distributor. The five cylinders are each of 100-mm. bore by 120 mm. stroke, and the nominal h.p. is developed at 1,200 r.p.m.

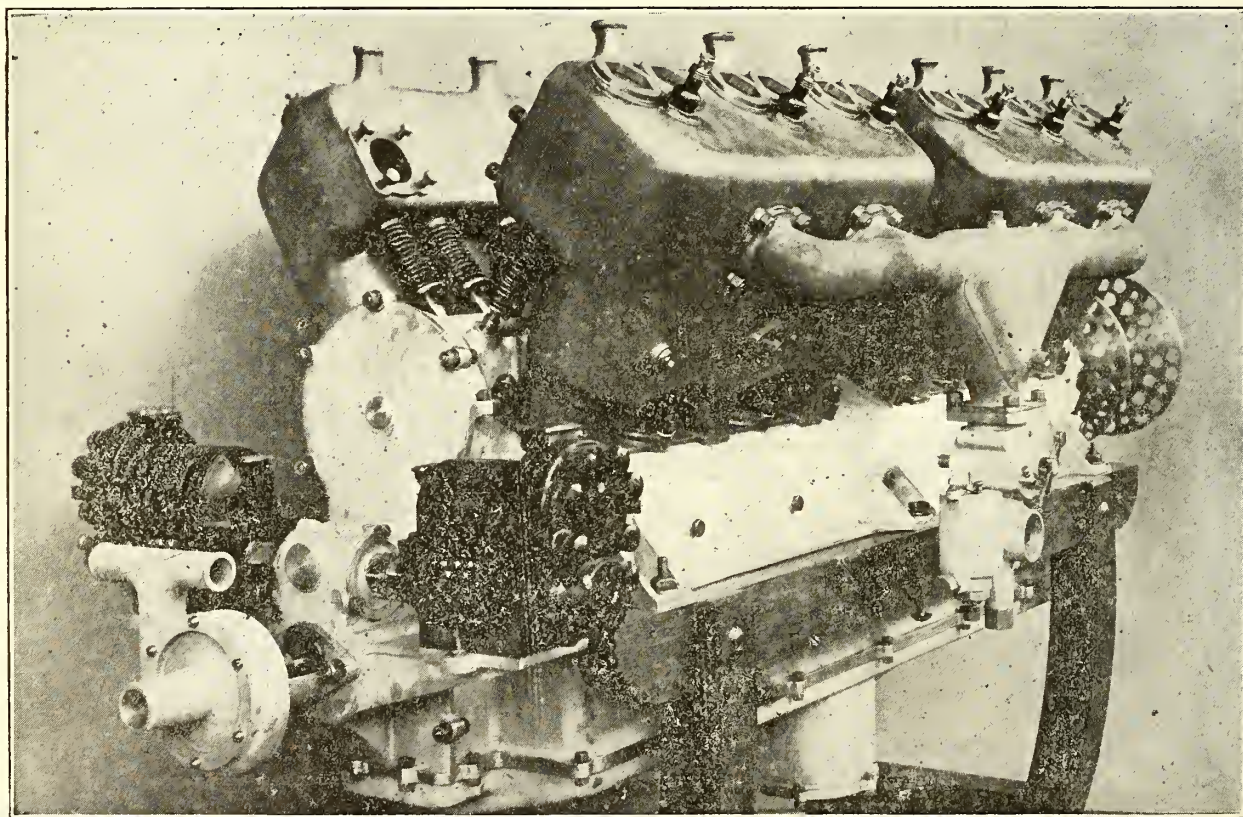
The Sunbeam Motor Car Co., Ltd., Wolverhampton.

The 150-h.p. aero-engine shown by the Sunbeam Co. is an 8-cylinder V type engine, with cylinders cast in two sets of four each, at 90 degrees to each other, with side-by-side valves, all operated through push-rods by a single central cam shaft, carried in a tunnel in the top of the crank case, and driven direct by spur-gearing from the crank shaft. The crank case is of cast aluminium, and is split on the centre line of the crank shaft, the bottom half forming a sump capable of containing sufficient oil for a long continuous run. The magneto is carried between the cylinders over the cam shaft and driven by a pinion meshing with the cam shaft gear. One carburettor is fitted to each block of four cylinders, and copper-deposited inlet pipes conduct the gas to the inlet valves.

At the front end of the engine a two-to-one reduction gear is built into the crank case, the propeller countershaft being supported in a long nose, giving ample length between supports to secure the requisite stiffness.

The bore and stroke are 90 mm. by 150 mm., and the rated h.p. is developed at 2,000 r.p.m., corresponding to a propeller speed of 1,000 r.p.m., and the weight of motor complete is 480 lbs.

The 225-h.p. motor of this mark is on similar lines, of the same bore and stroke but with 12 cylinders, and develops its rated power at the same speed. The salient points of difference are that each line of 6 cylinders is cast in two blocks of three each, and the two lines are set at an angle of 60 degrees. Two magnetos are fitted, driven by a cross shaft at the rear end of the engine owing to the less space available between cylinders.



The new 225-h.p. Sunbeam Engine. Twelve cylinders at 60 degrees in 4 blocks of three cylinders each.

OLYMPIA

STAND 26

BENZ

AERO ENGINE

Sole Concessionaires for the United Kingdom:
THE BROMPTON MOTOR CO., LTD.
 78-80-82 BROMPTON ROAD
 LONDON S.W.



AT STAND
No. 72
AERO and MOTOR BOAT
EXHIBITION,
OLYMPIA
 March 16th to 25th, 1914

NORTH BRITISH

Aeroplane & Balloon Fabrics

Aeroplane Tyres

Celluloid Varnish

Fabric Waterplane Floats

Aeroplane Springs

Masticated Rubber,

Non-inflammable Cement

Rubber Boots and Clothing for Aeronautical, Motor Boating and Yachting use.

Rubber Tiling for Motor Boats, Yachts, etc.

Rubber Mats, etc., etc.



A comprehensive All-British Exhibit manufactured by the Pioneers of Rubber-proofed Balloon and Aeroplane Fabrics.

The NORTH BRITISH RUBBER Co., Ltd.,
Castle Mills, EDINBURGH.

(Pg 12)

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," War Office, March 10th. Regular Forces:—

Royal Flying Corps.—Military Wing.—Major J. D. B. Fulton, C.B., R.A., Chief Inspector, Aeronautical Inspection Department, is appointed to the Reserve (December 17th, 1913).

NAVAL.

Admiralty appointments, March 10th:—A. Corbett-Wilson has been appointed Probationary Sub-Lieutenant in the Royal Naval Reserve, with seniority of March 15th, and to "Pembroke," additional, for the Farnborough Naval Airship Station, same date.

It is stated in "Truth" that a British battleship of the most recent type has been fitted with anti-aeroplane quick-firers, capable of firing shells at the rate of 20 a minute, and with a range of 7,000 yards.

On March 11th a new Short seaplane (160-h.p. Gnome) was delivered to the Naval Air Service at Isle of Grain. Piloted by Mr. Gordon Bell, and carrying a passenger, wireless apparatus, and fuel for five hours, the machine climbed 3,200 ft. in 8 mins. 10 secs., the first 1,000 ft. taking 1 min. 40 secs. These are the official times. It was estimated that the horizontal speed of the machine is 78 m.p.h., and though this is unofficial, it is clear that the 160-h.p. Short is the fastest completely equipped seaplane in the world.

On March 11th also the British altitude record was beaten at Eastchurch by Engineer-Lieut. E. Featherstone Briggs, R.N., who, on the same tandem Blériot which he flew during the military manoeuvres of 1913, but since fitted with new wings and recently fitted with a Le Rhone engine of 80 h.p., reached a height of approximately 15,000 ft. The barographs still have to be checked, but the height is not likely to be far short, and it may be more. The cold at this altitude was intense, and as the result the unprotected portions of Mr. Briggs' face were badly frost-bitten, and at the time of writing some anxiety is felt about the result.

Capt. Barnby, R.M.L.I., accompanied by A.M. Rogers, left Dundee on the Short for St. Andrews on Monday, alighting on the sands there, and returned at 2,300 ft., having a rough passage. On Tuesday Major Gordon, R.M.L.I., took the machine to Leven and had to stay overnight there owing to a type bursting as he attempted to leave. The Borel, which has been overhauled and altered, was taken out on Wednesday afternoon by Major Gordon. The machine was conveyed about 100 yards east of the base on trolleys and there launched. The

first flight of about 20 mins. was over the Tay, while in the second A.M. Coleman was taken as passenger, but the engine did not behave well. A third flight was made west of the Tay Bridge at 900 ft. The entire detachment left next day for Leven to carry out manoeuvres there, and the Borel will be flown there when the place is ready for it.

Two Short seaplanes arrived in boxes at Leven last week, and the Borel seaplane No. 86 is expected, and Short No. 42 arrived on Tuesday by air from Dundee. About twenty-five men were stationed there at the same time, and more are expected daily, with Major Gordon, R.M.L.I., in command. Four sheds are in course of erection and all hands are busy at unpacking and erecting machines. It is rumoured that this detachment of the Naval Air Service will remain at Leven for some six weeks.

At the Naval Flying School at Eastchurch on Tuesday two Shorts, two B.E.s, and two Avros were out. Sub-Lieut. Marix went to Hendon on Caudron, returning at dusk. Lieut. Spenser Grey arrived on the 100-h.p. Sopwith Tabloid from Hendon at 3 p.m. Mr. Jack Alcock arrived on the 150-h.p. Maurice Farman half an hour later from Brooklands. Commr. Samson arrived from Battle on Short tractor, and Lieut. Briggs arrived on Blériot from Eastbourne.

On Wednesday the 140 h.p. (formerly 100-h.p.) Short tractor No. 10 (Commr. Samson's old favourite) was out, and was timed to do over 70 m.p.h.; Short 3, two other Shorts (80 and 100-h.p.), two Avros, Caudron 80-h.p. Gnome-Deperdussin, two Sopwiths, Maurice Farman and Henry Farman machines were up. Three pilots went for altitude, Lieut. Briggs topping the list, and incidentally beating the British height record, 15,000 ft., on the 80 Le Rhone-Blériot. He was badly frostbitten, but is progressing favourably. Commr. Samson, with Mr. Bell, reached 10,000 feet on No. 3. On Thursday it was wet first thing, but fine later; Henry Farman, Sopwith, Avro, and Short machines up. On Friday: rain and wind, but a Short machine was up.

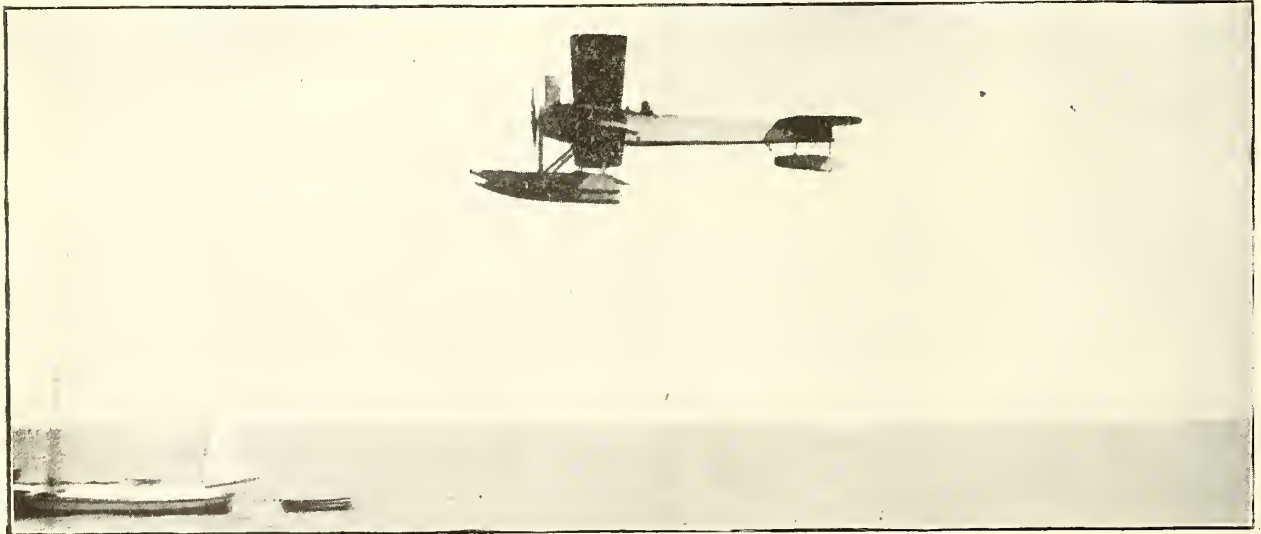
MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending March 6th, 1914:—

Flying Depot (Farnborough).—Experimental work, repairs, and assistance given to the Inspection Branch occupied the personnel of the squadron throughout the week.

No. 2 Squadron (Montrose).—The major portion of the week was devoted to packing up portable sheds and occupying the



The New Short Seaplane described in this issue making her first flight at Leysdown, piloted by Mr. Gordon Bell.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and.
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
 LONDON AERODROME, HENDON.

The Latest Thing
 IN
FLYING BOATS

42 STAND 42
OLYMPIA

PERRY, BEADLE & CO.

Offices and Works:
 Gould Rd., Twickenham

WHITE and THOMPSON Ltd.

SOLE CONCESSIONAIRES

FOR THE

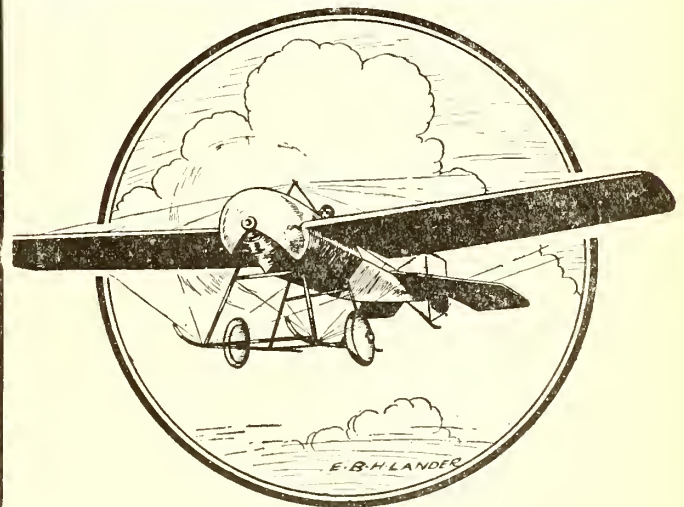
CURTISS
FLYING BOATS
and ENGINES

IN THE UNITED KINGDOM
 AND THE
 BRITISH COLONIES

MIDDLETON, BOGNOR, SUSSEX

Telephone—
 48 Bognor

Telegrams—
 "Soaring," Bognor



"Blackburn" Monoplanes, Biplanes,
 and Hydro-Biplanes,
 Propellers and Accessories.

THE BLACKBURN AEROPLANE COMPANY,
 BALM ROAD, LEEDS. (Stand 63 Olympia).
 Telegrams—"Propellers, Leeds." Phone—2822 Central.
 London Offices: H. A. TURRILL, 104, High Holborn, London.
 Telephone—4950 and 1791 Holborn.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

new permanent hangars. Some long reconnaissances were carried out towards Dunbar and Aberdeen.

No. 3 Squadron (Netheravon).—Rain and low clouds have interfered with flying in the squadron, but some useful experiments were made with photography and range-finding.

No. 4 Squadron (Netheravon).—Rain curtailed flying on several days. Several reconnaissances were, nevertheless, made by the officer-pilots and training continued.

No. 5 Squadron (Farnborough).—The weather has been unsuitable for much flying, but the officer-pilots of the squadron were frequently out.

No. 6 Squadron (Farnborough).—Machines newly handed over to the squadron were tested and some reconnaissance flights were accomplished.

The War Office, March 10th, 1914.

Montrose Aerodrome was visited on Monday by General Henderson, Col. Sykes and Major Fisher, who inspected the new aerodrome very fully. The weather was perfect, and these officers spent a considerable time examining the surface of the ground; General Henderson made an ascent with Capt. Longcroft in B.E. 232, and Capt. Waldron flew to Edinburgh with Major Fisher as passenger in B.E. 267. Capt. Todd was out on B.E. 233, and the Maurice Farman was engaged in school work. Next day Capt. Longcroft went to St. Andrews on B.E. 232, Capt. Todd went north in B.E. 233, and Lieut. Dawes and passenger in B.E. 267 went south. The Maurice Farman was also engaged in tuition flights at Dysart. This machine was out early next day; Capt. Longcroft on B.E. 267 flew to St. Andrews, and Capt. Todd, with A.M. Attrill, on B.E. 233 to Blairgowrie. The weather then changed and no flying was done on Thursday. Friday was very hazy, but Capt. Longcroft went south in B.E. 232 and Lieut. Lawrence was out in B.E. 226. Lieut. Harvey-Kelly arrived on Saturday amidst a storm from Farnborough in a new B.E.

The strength of machines at Montrose is being further added to by three B.E.s, which are on their way from Farnborough to Montrose. On Wednesday Lieut. Dawes, after stops at Newark and York, came down for petrol near Berwick and smashed two stays in his undercarriage on rough ground. The machine had not yet arrived on Saturday at Montrose. The other machine flown by Lieut. Martyn has not arrived.

The flags at the Montrose aerodrome and barracks were half-masted, while the officers and N.C.O.'s were in mourning for the deaths on Salisbury Plain.

Trials were made at Farnborough on Thursday, March 11th, with the latest Dunne biplane. Flights of 20 mins. and half an hour's duration respectively were made. Later Mr. Percival took up a passenger for 15 mins., reaching a height of 3,000 ft. The machine behaved very satisfactorily also when flown by an officer of the Royal Flying Corps, who expressed his appreciation of its stability and ease of handling. The machine's speed variation was 36 to 56 m.p.h., and its climbing speed 500 feet per minute.

FRANCE.

The unoccupied military hangars at Chauvinerie, near Poitiers, are to be taken over by an escadrille which will assist artillery operations. The officer-observers will be Lieuts. Feconetti, Bertruc, Pacaud, Gambier, Pascal and Argral, and Sub-Lieut. Duhil de Benaze.

Two officers of the French navy, Lieuts. Destrem and Lescaille, flew on March 12th, on Nieuport seaplanes, from San Raphael to Calvi in Corsica, a distance of 110 miles. Three pilots started, but one ran out of petrol and had to descend. He was picked up and towed to Calvi.

Lord Edward Grosvenor recently had a bad smash on his Blériot at Buc, when landing in a 55-mile an hour wind, and damaged his left leg and arm.

A naval seaplane station is to be formed at Toulon, where several seaplane hangars are already being constructed.

A series of tests were commenced on Saturday, March 14th, at San Raphael to test the visibility of submarines when submerged.

GERMANY.

Lieut.-aviator von Lesser was killed at Königsberg on March 14th through making a bad landing and turning the machine over on top of himself.

The German military airship Z. V manœuvred over Doeberitz on Saturday 14th, carrying out firing experiments from a gallery on the top of the envelope.

A quick-firer was used, and the target was a rectangular case, 10 m. by 5 m., which was suspended from a balloon. The range was varied from 1,500 to 2,500 metres, but the results have been kept secret.

On March 9th the Schutte-Lanz dirigible made her second flight with a military commission on board. Altogether she carried 25 passengers. The journey embraced Mannheim, Schwerzingen, Spies, Heidelberg and Cologne. Both the speed, duration and altitude tests were successful, and she will be accepted by the Government.

Among the officers entered for the Prince Henry Circuit are Lieuts. von Hiddessen, Canter, Carganico, Kastner, Joly, Geyer and von Thima. The trade had entered 32 machines by the beginning of the month already. Twenty officers, partly Prussian, partly Bavarian, will compete, at least four times as many having sent in their names.

The Grand Duke of Baden has bestowed the Cross of the Second Class of the Zähringer Lion Order on Ernst Schlegel for his services to aviation.

The Leipzig hangar will house not only Z. 6 but Z. 8, the newest military addition, as well for some considerable time to come. The Parseval vessel, P.L. 6, goes to Leipzig the middle of the current month for passenger cruises.

The army is interested in the new monoplane constructed by Herr Westphal, which is being tested by Karl Krieger. The designer was assisted by the National Aviation Fund, which loaned him a six-cylinder 100-h.p. Mercédès motor. The Westphal aeroplane is stated to have risen 800 metres (2,700 ft.) in 6 mins. with full military load.—B.

RUSSIA.

The Russian Government has ordered ten of the huge Sikorsky biplanes for the army. The cost is said to be £20,000, or only £2,000 each. Considering that the machines are each fitted with two 200-h.p. Salmson engines, the cost does not seem excessive.

ITALY.

P.3 is now installed at Mirafiori, whence she has already made short flights.

P.4 took advantage of the full moon on March 13th to return from Rome to Venice, where she is quartered, by night, thus completing a signally successful round trip.

M.1, finished somewhat hastily in order to go to the war, is now being fitted with those improvements which were found advisable when M.2 was built. The changes being made in her are, it is stated, mainly in control arrangements.

The second week in March seems to have found out weak points in many military engines. Two escadrille flights—which have become almost too normal to cause notice recently—were quite spoilt by vagaries of the motors. Luckily, the pilots were able to land comfortably with one exception, Capt Resio, who was himself, however, unhurt.—T. S. H.

AUSTRIA.

On March 9th Lieut. Elsner, a sub-officer of the Austrian army, and his passenger fell from a great height at Vienna, both being killed instantly. The wing of a biplane they were testing broke in the air.

The rules for the Austrian Schicht prize of 100,000 kroners have now been published by the Imperial and Royal Austrian Aero Club. The contest is to be a cross-country flight with one passenger in three stages from April 19th to 26th. The stages are Aspern (Vienna)—Prage—Teplitz—Aussig—Bruen—Aspern; Aspern—Raab—Buda Pesth; and Buda Pesth—Aspern. Should not sufficient entries from national pilots on national machines be received, foreign pilots on Austrian machines, or Austrian pilots on foreign machines, may compete. Besides the 100,000 kroners of the Schicht prizes, most of the towns on the route have presented trophies. No entries can be received after April 20th.

TURKEY.

Death has claimed another Ottoman victim in the person of Nouri Bey, who fell into the sea at Jaffa on March 11th,

THE
Monk Engineering Co.,
LTD.

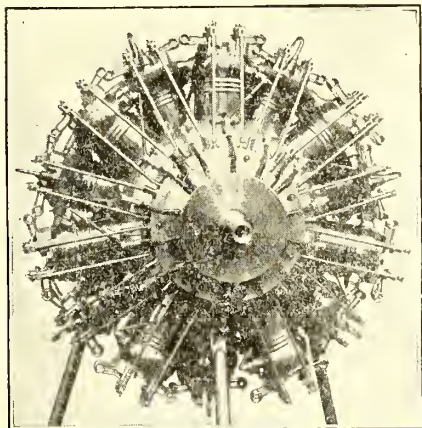
High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES!

SALMSON
AERO-ENGINES
SYSTEM CANTON - UNNE.



'Phone No.:
7 Stroud.

Tele.
Address:
Humpidge,
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

London Office: -87, Victoria Street, S.W.

'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

A BANDAGE &
A BOX OF
Zam-Buk

MAKE THE
SIMPLEST & MOST EFFICIENT
FIRST-AID EQUIPMENT
EVER DEvised.

Soothing, Healing & Antiseptic.

KEEP **Zam-Buk** ALWAYS
HANDY.

STAND No. 70

EASTBOURNE
AVIATION
CO., LTD.

ARE EXHIBITING A

TRACTOR BIPLANE

WE HAVE EXCELLENT ACCOMMODATION
FOR **WATERPLANES**

sustaining fatal injuries. His passenger escaped uninjured. They had deviated from their course to visit Jerusalem, and the disaster occurred during the resumed journey southwards.

Kemal and Selim Beys, who started from Constantinople for Alexandria to replace the late Fethi and Sadik Beys on the "Ertoghul," have been wrecked at Edremid, but are unhurt. A fourth aeroplane has now been ordered to start. The will of the Turk is indomitable.

The Turkish Government has sanctioned a proposal of the Ligue Nationale Aérienne to run an aerial post between Aleppo and Baghdad, a distance of 560 miles. As the route lies across desert country, the post, if it comes to fruition, will be of real utility, although obviously the dangers will be ever present and peculiar.

FOREIGN NOTES.

France.

On the night of March 11th M. Maurice Farman, with M. Derome as passenger, flew some time in the dark on a machine "specially designed to make it possible to fly without danger on the blackest of nights." Starting from Buc at 8.30 p.m., they flew over Satlay, Jouy-en-Josas, Villacoublay, Petit-Bicêtre, Chatillon, Clamart, Chalais-Meudon, Velizy, Loges-en-Josas, Haut-Buc, the camp of Satory (where they were discovered by three searchlights), finally returning to Buc at 9.15 p.m., where they landed as easily as in daytime.

M. Deroye, the well-known Blériot pilot, is coming to England to put three Blériot monoplanes through their reception tests for the British Army.

Germany.

Ernst Stoeffler, brother of the world's record-holder, recently flew from Mulhouse to Freiburg in 14 mins. with a strong wind at his back. He delivered an Aviatik biplane in Freiburg and, incidentally, set up a new speed record, his pace being 230 kms. (140 miles) an hour.

February witnessed a record number of ascents at Johannisthal, 6,046, with a total duration of 657 hours and 14 minutes. Of the 140 pilots who helped towards the above aggregate, Ballod, with his Jeannin-Dove, again led with a total of 43 hours 27 minutes.

Helmuth Hirth, Kuchne and Bruno Langer have formed a syndicate and will compete in all the big events of the year. They have ordered three Albatros machines, two biplanes and a monoplane.—B.

Italy.

The Dal Mistro-Pégoud incident is sobering down. The latter has in the meantime been confined to bed. The expert's sentence gives things in M. Pégoud's favour on the whole, though he opines that the clumsy way in which the tuning-up (or down!) was done might cause trouble in itself. The weight appears to have been left very rough, which might possibly prevent its free motion or cause it to hang up. The matter now simply centres round the question of touching and interfering with another man's machine.—T. S. H.

A British naval officer writes:—

"Two British battle-cruisers and fourteen destroyers have recently been on a visit to Genoa. On the 8th the aviator Hanouille gave a wonderful exhibition of 'looping the loop,' 'corkscrew,' and upside-down flying over the entrance to the harbour. Dense crowds thronged the Duc di Galleria mole, and droves of steamboats and shore-boats were at the entrance of the harbour. He arrived from the westward, flying about 2,000 ft. high, at about 3.40, and his first exhibition was a loop and dive. Then he banked right over, side-slipped, and came horizontal and then over the other way. After this he 'looped' several times, doing three together once. Then he climbed to nearly 3,000 ft., I should say, and dived vertically down, 'corkscrewing' round and round, finally flattening-out scarcely 250 ft. from the water. A splendid exhibition, which was watched with great interest by everyone."

Spain.

M. Hanouille was killed at San Sebastian on Monday through an alleged explosion in his engine when he was upside down over the sea. He was dead when retrieved. The accident is quite as likely to have been due to a breakage in a much-

travelled and severely used machine. One gathers that he flew a Henri Farman of standard type. This is the first death of a looping aviator.

Egypt.

The irrepressible J. Védérines seems to have fairly put his head into the lion's mouth. Sentenced to a year's imprisonment by the Courts of the German Empire last year for committing the offence of flying over the Fatherland without permission, he has had the temerity to board a German liner belonging to the North German Lloyd Co., which is, of course, German territory, en route from France to Egypt, and it seemed possible that this bird of ill-omen would be caged for twelve months, but apparently Germany decided it could do without him and let him land unarrested.

A friend in Egypt sends an amusing account of M. Emanuel Chevillard's performances in the land of the Sphinx. The Henri Farman on which he loops has no "upside-down" leads from the petrol-tank, with the result that the engine stops as soon as he passes the vertical. M. Chevillard's explanation of this omission is that, whatever happens, the machine is bound to turn right side up at least once in a fall!

On one occasion recently he took up M. Guillaux's manager, M. Lucien Maître, for a "joy-ride." The passenger afterwards told our correspondent that Chevillard never looked ahead once all the time, but sat with his head craned round, watching the facial contortions of his emotion-stricken passenger, who, with only a thin strap across his knees, clung on like grim death every time the machine performed an awe-inspiring bank. Then M. Emanuel told his guest that they would hunt camels, and forthwith dived at some unhappy Bedouins who were driving a string of camels, and called out in his deep, hoarse croak the native driver's constant cry in the narrow streets of Cairo, "O ai rigluck" ("Mind your feet!") and yanked the machine up again while the enraged savages hurled sand and pebbles at him.

Recently M. Guillaux "looped" in a gale which nearly blew the sheds down. Not to be outdone, Olivier, the pseudo-hero of the Balkans, started out with the courage of ignorance, and was caught about 30 ft. up between two dust-storms blowing in opposite directions—a very unusual phenomenon. The on-lookers thought he would be killed, but his luck saw him through, though he confessed to a hard landing.

U.S.A.

The big 200-h.p. Curtiss motor for the Wanamaker trans-Atlantic flier has been given a 5-hour run at moderate speed, and is said to have behaved perfectly. It has been thought advisable to keep the speed below 1,100 revolutions per minute for the first few days, but even at that speed signs of considerable power were given.

It is of the Curtiss Vee type, eight cylinders with a bore and stroke of 5 by 7 inches. Cylinders are separate, with welded water-jackets of non-corrosive Monel metal. Each cylinder has four tungsten steel valves of large size. All 32 valves are operated from a single camshaft. The cylinders are held down to crank-case by tubular studs from the heads with extension through-bolts through main bearing caps. The crank-case is of cast aluminium in two halves. The crankshaft of Krupp steel is 4 ft. long, and is drilled for an oil-duct. Connecting-rods are 1-type forgings with large bearings and oil-ducts to piston pins. Water circulation is by large centrifugal pump. Cylinder heads and valve seats are water-cooled, and the exhaust-valve stems are water-cooled for almost their entire length.

One large pump supplies oil under pressure to the bearings, while two smaller pumps keep the crank-case drained. A Schebler carburettor is used, and ignition at present is by two-spark Bosch magneto, but this may be replaced later by two single-spark Bosch instruments.

The Wright-Curtiss squabble continues to fill the American aeronautical papers, and the personal spite which pervades the whole dispute is really very regrettable to aviation. Mr. Orville Wright sends lengthy letters to the papers, from which one gathers he wishes to crush out the Curtiss firm qua Curtiss by the imposition of prohibitive royalties. He claims that he is

GODDARD'S

MOTOR, MOTOR-CYCLE, and CYCLECAR HOUSES.



ft.	ft.	ft.		£	s.	d.
8	0	7½	high	16	0	
10	8	8	"	5	8	0
12	8	8	"	6	15	0
14	8	8	"	8	17	6
15	10	8	"	10	0	0

CARRIAGE PAID.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned ¾ in. T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing. Large Illustrated Catalogue, with prices of other houses, post free.

Makers of Portable Wooden Buildings of all descriptions.

GODDARD'S, LTD.,

Crown Works,

VICARAGE LANE, ILFORD, ESSEX.

Telephone: 880 Ilford



If you want

**SUCCESS
RELIABILITY
& EFFICIENCY**

use

Hobson

POGNON PLUGS.

Special types for Gnome & other rotary engines

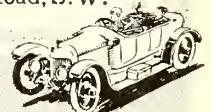
LATEST SUCCESSES, 1914.

JANUARY.
7 World's Records
at Brooklands

FEBRUARY.
Swedish Winter Trials,
Gothenburg Cup.

H. M. HOBSON, Ltd.

29, Vauxhall Bridge Road, S.W.



WOOD

— for —

MODELS.

WE LEAD

You want the finest quality Wood. We have a large stock of the finest Silver Spruce, White Birch, Ash, Satin Walnut, Poplar, etc., from which we manufacture Hollow Spars, H.T. and U section spars, Circular tubes, Propeller blocks, and wood for all parts of models.

For Catalogue please send trade card to

W. G. EVANS & SONS,

2, Williams Mews,

Stanhope Street,

Euston Road,

Tel.:—MAYFAIR 2458.

LONDON, N.W.

FOR EFFICIENCY
& RELIABILITY IN

Aero-Radiators

Send your enquiries to the
well-known radiator experts

The Motor Radiator Mfg. Co.,
Greet, Birmingham.

Telegrams - Nerleak, Birmingham.
Telephone - 455 Victoria, Birmingham.

OLYMPIA SHOW, STAND 36.

H. A. TURRILL

Aeronautical Engineer and Automobile Representative

GWYDIR CHAMBERS,

104 High Holborn, London, W.C.

AERONAUTICAL. — Balloons, Hangars, and Blackburn Aeroplanes.

AUTOMOBILE. — All makes of Cars supplied. Special Delivery of ARROL-JOHNSTON and KRIT CARS.

Telephones: **HOLBORN 1791, 4950.**

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS

willing to "let down" all other firms lightly. Mr. Wright contends that the litigation has proceeded to the extreme length the Courts allow, and that Mr. Curtiss has no appeal, so that the Wright patents hold good, and that therefore Mr. Curtiss would have to settle for all back business. The "moderate" royalty to be extorted from all aeroplane manufacturers in the States is to be of the order of 20 per cent. Mr. Curtiss is to be treated with much greater severity. Mr. Wright's protest that his insistence on royalties is in order to encourage other inventors is too absurd. The whole business is too lamentable for words.

Dr. Frank M. Bell, who was injured recently in an accident near Meridian, Miss., U.S.A., has since died as a result of his injuries. No particulars are to hand.

A Statement from Mr. Glenn H. Curtiss.

In some New York daily papers there have been published during the past week certain statements attributed to Mr. Orville Wright, regarding his attitude in the aeroplane patent situation. Mixed in with these direct quotations were interpolated insinuations impugning my good faith in the patent litigation, and carrying suggestions easily interpreted as such untruths as I cannot believe Mr. Wright, or any other sane man, ever made.

The idea that any single line or part of my machine was either copied from the Wright machines, suggested by the Wrights, or by their machines, is absurd, if not malicious. My first public flights, as a member of the Aerial Experiment Association, are a matter of record, and were made months before the Wrights exhibited their machines or made their first public flights. I never had an item of information from either of the Wrights that helped me in designing or constructing my machines or that I ever consciously used. I believe to-day, as I always have believed, that the Curtiss control differs fundamentally from that employed by the Wrights, and that its superiority to the Wright system is demonstrated by the records of two machines during the past five years. That I was unable to satisfactorily demonstrate this intricate technical point to the court I consider a misfortune largely due to the fact that our knowledge of aviation was vastly less when this case went into court several years ago than it is to-day.—GLENN H. CURTISS.

The Royal Aero Club Committee.

By the time this paper appears the voting papers for the new Committeemen of the Royal Aero Club will be in the hands of members. In order to get the right men on to the Committee it is necessary that those interested in the welfare of aviation should vote as nearly unanimously as possible. One wishes that at least twelve of the fourteen candidates could be elected, but we are only allowed to vote for nine. The feeling among those in touch with events is that the best nine, in alphabetical order, are as follows:—

Major Fulton, Mr. Cockburn, Major Lindsay Lloyd.

Mr. Fred May, Mr. N. C. Neill, Commander Samson.

Sir John Shelley, Mr. Sopwith, Lord Tullibardine.

It is hoped that members who are not closely in touch with the inner workings of the Club will assist by voting for these names. Also, it is hoped that at the next election we who desire reform in the councils of the Club may be able to elect several of those who cannot be got on to the Committee this time.—C. G. G.

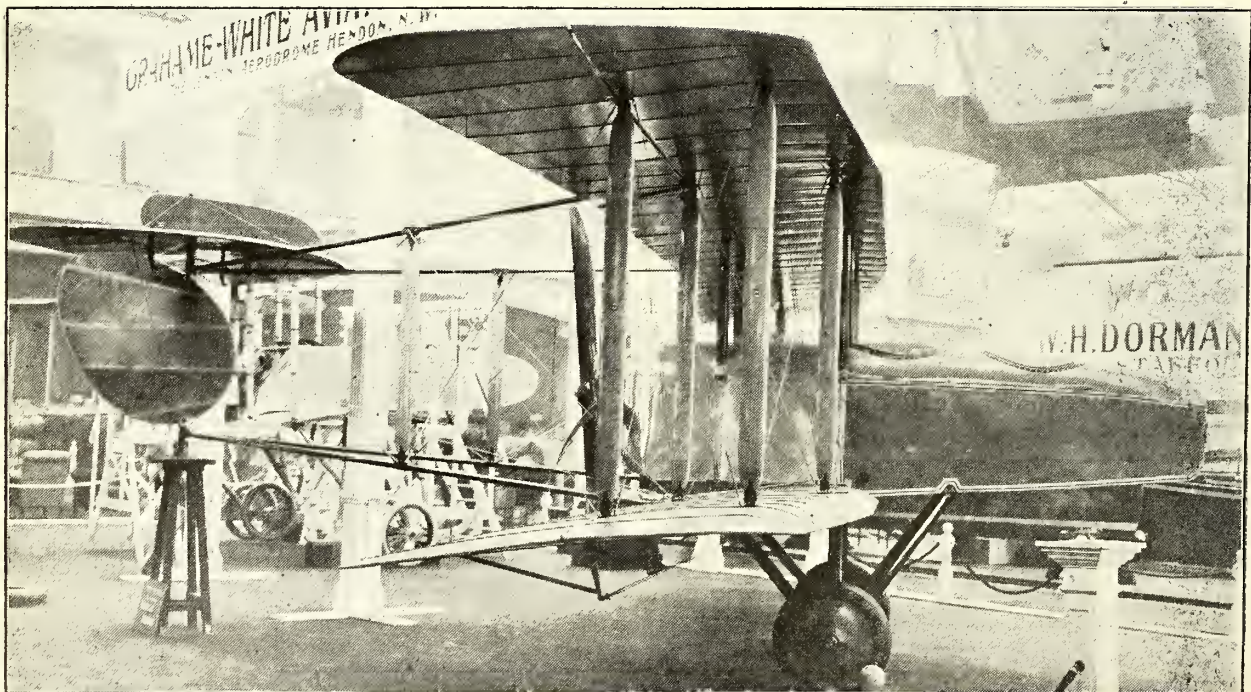
The Aeronautical Society.

OFFICIAL NOTICES.

Elections:—Members: Eng. Lieut. G. Aldwell, R.N.; F. S. Barnwell. The tenth Meeting of the present Session will be held on Wednesday, April 1st, at 8.30 p.m. Messrs. B. C. Hucks and C. Gordon Bell will read a paper on "Three Years' Flying Experience," followed by a discussion. Members are reminded that, under the Rules, they may introduce visitors to General Meetings. Tickets for visitors, not introduced, may be obtained from the Secretary, 11, Adam Street, Adelphi, W.C.—B. G. COOPER (Sec.).

A New Flying Suit.

Particulars have been received of a new flying suit recently produced by the Grapholn Manufacturing Co., of 195, Upper Thames Street—a firm whose multifarious activities embrace most things to do with locomotion. The suit in question has been evolved after consultation with various well-known fliers. The cloth used is a proofed gabardine, lined with a three-layer fabric, built of two layers of woolly material interlined with leather. The whole compound fabric is very flexible. The suit is made in two garments, a coat, which buttons right across the chest, and a pair of trousers, both of reasonable outline, unlike the grotesque garments so often sold.



The New Grahame-White Biplane, 100-h.p. Gnome. One of the best finished machines ever produced.

SPARS and all BOOMS AEROPLANE PARTS to makers' own designs

Send us your Requirements and let us quote for you.

R. CATTLE, Machine Woodworking
to the Trade,
27 Wybert St.
Stanhope St., N.W. **STRUTS
SKIDS**

Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality
ON ADMIRALTY AND WAR OFFICE LISTS

CAN
CASTS
CLEAN
CRANK
CASES

R. W. COAN
219,
GOSWELL
ROAD,
LONDON, E.C.

Telegrams—
Krankases,
Isling,
London.

Telephones—
3846 City
4879 Central.

AERONAUTICS

THE RESISTANCE OF THE AIR AND AVIATION.

Experiments conducted at the Champ-de-Mars Laboratory, by G. Eiffel. Revised and Enlarged from the Second Edition, and new matter not hitherto published. Translated by Jerome C. Hunsaker, Assistant Naval Constructor United States Navy. Over 130 Illustrations and Diagrams. Royal 4to. 42/- net. "It is, we feel certain, by far the most important addition to the literature of artificial flight which has been made in the English language."—The Engineer.

DYNAMICS OF MECHANICAL FLIGHT.

By Sir George Greenhill (late Professor of Mathematics in the R.M.A., Woolwich.) Demy 8vo. 8/6 net.

CONTENTS.—General Principles of Flight, Light, and Drift. Calculation of Thrust and Centre of Pressure of an Aeroplane. Helmholtz-Kirchhoff Theory of a Discontinuous Stream Line. Gyroscopic Action, and General Dynamical Principles. The Screw Propeller. Pneumatical Principles of an Air Ship.

"The present volume should prove invaluable to every student of aeronautics who wishes to obtain an insight into the principles involved in the construction and working of flying machines."

Prof. G. H. Bryan, in the *Aeronautical Journal*.

AERIAL FLIGHT. By F. W. Lanchester. Illustrated.

VOL. I.—AERODYNAMICS. Demy 8vo. 21/- net.

VOL. II.—AERODONETICS. Demy 8vo. 21/- net.

VOL. X.—AEROPLANES. Cloth, 12/- net; leather, 16/- net.

THE D.-S. SERIES OF TECHNICAL DICTIONARIES IN SIX LANGUAGES. ENGLISH, SPANISH, GERMAN, RUSSIAN, FRENCH, ITALIAN.

With each word, term, or item, so far as it is possible, a diagram, formula, or symbol is given, so that error or inaccuracy is almost impossible. Detailed prospectus post free.

THE INTERNAL COMBUSTION ENGINE: Being a Text-Book on Gas, Oil, and Petrol Engines, for the use of Students and Engineers.

By H. E. Wimperis, M.A., A.M.Inst.C.E., A.M.I.E.E. Illustrated. Crown 8vo. 6/- net.

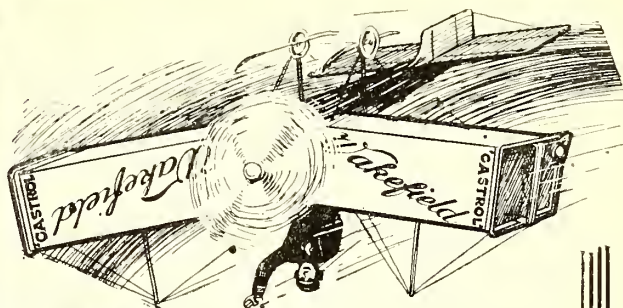
A PRIMER OF THE INTERNAL COMBUSTION ENGINE.

By H. E. Wimperis, M.A., A.M.Inst.C.E., etc. 2/6 net.

Copies of the above books are on sale at the "AEROPLANE" Stand No. 110.

Please write to Publishers for Technical List.

CONSTABLE & Co Ltd LONDON



MR. B. C. HUCKS
AND

MR. G. HAMEL

lubricate their engines with

WAKEFIELD

'CASTROL' Regd.

MOTOR OIL

FOR THEIR 'LOOPING' EXHIBITIONS.

Is it possible for us to advance more convincing proof of 'Castrol' excellence?

C. C. WAKEFIELD & CO.,
Wakefield House, Cheapside, London, E.C.

STAND No. 99 AERO & MARINE EXHIBITION
OLYMPIA. C.D. C.

PRACTICAL BOOKS on FLYING

Just Published. 180 Pages, with Diagrams. Large Crown 8vo. 3s. 6d. net.

THE AVIATION POCKET BOOK FOR 1914.

Containing, amongst other valuable information, the Theory and Design of the Aeroplane, Structural Material, Examples of Actual Machines, etc., etc. By R. BORLASE MATTHEWS, A.M.I.C.E., M.I.E.E., Member of the Aero Club

THE ART OF AVIATION.

A Handbook upon Aeroplanes and their Engines, with Notes upon Propellers. By R. W. A. BREWER, A.M.I.C.E., M.I.M.E., etc. Popular Edition. 294 Pages. 95 Illustrations. Demy 8vo, cloth. 5s. net.

AERIAL NAVIGATION.

A Practical Handbook on the Construction of Dirigible Balloons, Aerostats, Aeroplanes and Airships. By F. WALKER. Second Edition, thoroughly revised and enlarged. 176 Pages. 128 Illustrations. Crown 8vo, Cloth. 5s. net.

MODEL BALLOONS AND FLYING MACHINES.

With a Short Account of the Progress of Aviation. By J. H. ALEXANDER, M.B., A.I.E.E. 136 Pages. 46 Illustrations. Crown 8vo, Cloth. 3s. 6d. net.

PRACTICAL AERONAUTICS.

An Understandable Presentation of interesting and Essential Facts in Aeronautical Science. By CHARLES B. HAYWARD, with Introduction by ORVILLE WRIGHT. 750 Pages. 310 Illustrations. 15s. net.

FLYING MACHINES OF TO-DAY.

By WM. DUANE ENNIS. 218 Pages. 123 Illustrations. Large crown 8vo, Cloth. 6s. net.

The above books may be inspected on the "Aeroplane," Stand No. 110, at Olympia.

Complete List, Post Free, from

London: CROSBY LOCKWOOD & SON,

7, Stationers' Hall Court, E.C. and 5, Broadway, Westminster, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Fatal Accident at Netheravon.

Once more it is one's melancholy duty to chronicle the deaths of Army aviators. On Wednesday, March 11th, Captains C. R. W. Allen and Lieut. J. E. G. Burroughs, of Squadron 3, R.F.C., were flying biplane 204, formerly known as B.E. 4, at Netheravon, when the rudder-post of the machine broke and the machine came down, killing both pilot and passenger at once.

Captain Clement Robert Wedgwood Allen, of the Welsh Regiment, was born in China on May 18th, 1878. He was one of the earliest officer-aviators. He joined the Military Wing on its formation, and was gazetted a flight commander on July 1st, 1912. He learned to fly on a Bristol biplane and monoplane at Brooklands, taking his certificate, No. 159, on November 14th, 1911. Captain Allen will be remembered by many as the officer in charge of the constructors' camp during the Military Trials of 1912, when his cheerful manner and anxiety to make everybody comfortable won for him many friends. He was not a strong man physically, and he took to flying as much for the good of his health as anything else. He certainly liked flying for the sake of flying, and took the keenest interest in the mechanical as well as the military side of his work.

Lieut. J. E. G. Burroughs, of the Wilts Regiment, was born at Poole, Dorset, on February 2nd, 1884. He was gazetted to the Royal Flying Corps as a flying officer on April 17th, 1913. He took his certificate on a Maurice Farman biplane at the Farman School at Buc on January 1st, 1913, his certificate being 1914 on the French list. He was a very popular and promising young officer, and, like Captain Allen, he will be greatly missed by all who knew him.

The Inquest.

An inquest was held at Bulford Military Hospital on March 13th upon the bodies of Captain Allen and Lieutenant Burroughs. It was stated by Mr. F. M. Green, of the Royal Aircraft Factory, that the rudder bar, the breaking of which caused the accident, had been filed at the spot where it was welded to the rudder. This, he said, would reduce the factor of safety, and if it had been discovered the bar would have been changed.

Major Brooke Popham, O.C. No. 3 Squadron, said the B.E. biplane in which the officers were flying was of an old design,

but in his opinion, and in the opinion of others who had flown it, it was the best machine in a wind. It was thoroughly overhauled and practically rebuilt at the Royal Aircraft Factory last August and September. Every repair made should have been entered in the log-book, but he could discover no entry regarding the rudder, the breaking of which caused the accident. On examining the débris after the accident he found that the rudder bar was fractured at the point where the frame of the rudder began. The tube with which the rudder bar was made was far too light a section to stand the strain to which it would be subjected during flight. There were three possible causes for the mishap—first, the design of the machine might have been wrong and the strains miscalculated; or, secondly, the persons responsible put in too weak a tube; or, thirdly, the rudder post might have been changed after reconstruction and after it was handed over to the squadron. In any of these three cases there was evidence of criminal negligence of the officials responsible. If the repairs were done in his squadron, then he, as commandant, was responsible. If, on the contrary, the machine was handed over to the squadron in that condition, and nothing was done to it in his squadron, then he held the officials of the Royal Aircraft Factory responsible.

Mr. Green said the rudder bar was constructed according to drawings to a "twenty" gauge, which gave a thickness of a 25th part of an inch. He considered the tube thick enough, but upon examination he found that it had been filed at the spot where it was welded to the rudder. Filing the bar would reduce the factor of safety, and if it had been discovered the bar would have been changed. When the machine was last at the factory it was subjected to very severe tests, and the rudder bar then showed no signs of weakness.

The jury returned a verdict of "Accidental death."

One may state, as one with some knowledge of steel tubing, that the fitting of 20-gauge tube under such conditions displays ignorance, which in a Government workshop amounts to "criminal negligence."

The military funeral of the two officers took place on Monday, 16th, at Bulford, and was attended by a large number of officers of the Royal Flying Corps. Mr. Burroughs was buried the same day at Bristol, and Captain Allen on Tuesday, at Stroud.

The Army Estimates.

The Secretary of State for War introduced the Army Estimates on March 10th. The chief points of his speech follow:—

"With regard to aviation. I have asked the House to sanction a very large Estimate indeed—£1,000,000—for aviation. In order that it should be safe it has got to be very expensive. Since I last addressed the House, there has been one accident of a fatal character. In the memorandum which I have circulated I thought it right to refer to the comparative immunity from fatal accidents. By an unhappy coincidence, on the very morning of the day on which I am presenting these Estimates to the House, another brave young officer loses his life, this time again, not in the Military Wing, but under tuition on Salisbury Plain. I have not yet full details of the cause of the accident, which, of course, will be most carefully investigated; but that this brilliant young officer lost his life in the service of his country as fully as though he had died on the field of battle no one will deny.

"It must be a hazardous business, but it can be made less hazardous by the provision of money, and in that the House has been most generous."—Presumably this is why the bulk of the money goes to the Royal Aircraft Factory. They will need it if they are to make their machines safe.—C. G. G.]

"You cannot improvise an Air Service. We have been laboriously building it up now for more than two years. I honestly believe the British Army has now got it, and that it will continue to have it. So long as it has men who are determined to make any sacrifice in order to ensure that we shall not fall behind in quality—I say nothing for the moment

as to quantity—that is another question—in this great problem of mastering the air for the purposes of war."

"Here, if I may, I would make a public appeal to anyone who may hear me, or read what I say, to assist us in one vital matter with regard to cross-country flying. We have got the most difficult country in the world to fly over, not only because it is the most windy and gusty, but also because it is the most cut up with hedges. If any landowner or farmer has got a suitable field, if he will communicate with me or with General Henderson, at the War Office, I shall be most grateful. We should like to have the opportunity of making a large number of landing places all over England, Scotland, Wales, and Ireland in order to increase the safety of cross-country flights."

The MARQUESS OF TULLIBARDINE said: "I think the right hon. Gentleman is very wise to hand the Lighter-than-Air Department over to the Navy, because, after all, there are very few occasions when it would suit our Army to use the Lighter-than-Air Service. Obviously, in the present state of aeroplanes, for what I may call sea-scouting purposes, the Lighter-than-Air Service is, as we are situated, indispensable. The right hon. Gentleman also mentioned that airships would not be suitable for the Indian frontier. I should have thought that the Indian frontier was exactly the one place where airships would be suitable. After all, there are no dukes or other people there to give you land. It is very dangerous to abuse landowners there, and they are not always likely to welcome you if you make a forced descent upon them. Possibly the same remarks will apply to Somaliland, to where the right hon. Gentleman, if he continues in office, will probably have to turn his attention before very long.

DOPE WITH NOVAVIA

9, Coral Street, W.C.

THE DOPE

'TABLOID' BRAND ADJUSTABLE HEAD DRESSING, Compressed (Regd. Design)

Cap-like, instantly applied without skill,
stays in position, washable.

Aviators should carry it in readiness

10d. each, complete. All Dealers.



BURROUGHS WELLCOME & CO., LONDON



TEL

The Best Revolution Speed Indicator

Being mechanically operated possesses the following advantages—

Over 2000 TEL instruments supplied for use by the French, Russian, Italian and Spanish Naval and Military Depts. and the British Admiralty.

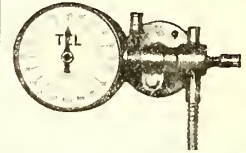
THE HASLER CO., 26 Victoria St. Westminster, London, S.W.

Phone Vict. 431

Uniform Dial Graduation

Not affected by changes in temperature or vibration.

Indicates with same accuracy high and low speeds.



BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SAFETY.

BLERIOT-AERONAUTICS, Belfast Chambers, 156, REGENT STREET, LONDON, W.

Works: BROOKLANDS, BYFLEET. SURREY.

SPECIAL INCLUSIVE TERMS FOR TUITION.

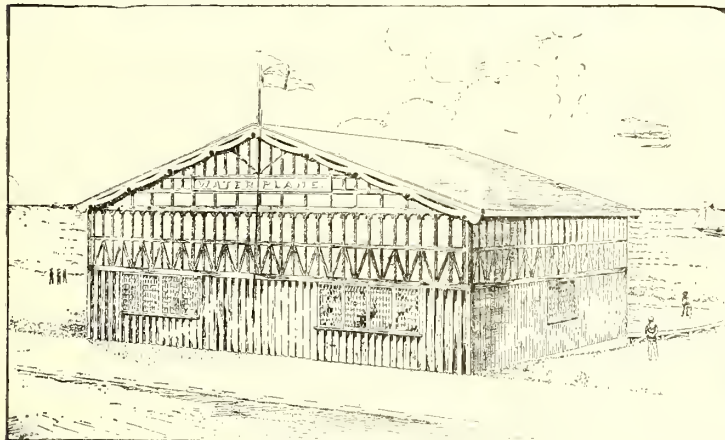
NORBERT CHEREAU, General Manager.

Telegrams—

"BLERIOPLAN, LONDON."

Telephone—

REGENT 3653.



HANGARS.

Plain and Cheap, or Ornamental
for Watering Places, etc.

Soundest possible construction.

Allport's Sliding Steel Doors are the
only perfect type and can be fitted
at slight extra cost.

Write for quotations for any size to:

The Wire Wove Roofing Co.

108, Queen Victoria St., London, E.C.

MOTOR AND AVIATION ADVERTISING SCHEMES-A SPECIALITY.

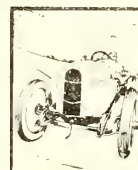


ERNEST B. H. LANDER

ARTIST & DESIGNER

13 SPENCER ROAD WANDSWORTH COMMON
LONDON S.W.

POSTERS SHOWCARDS CATALOGUES
PRESS ADVERTISEMENTS



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Expenditure on Aviation in the Naval Estimates, 1914-15.

According to the First Lord of the Admiralty, the sum devoted to the Development of the Naval Air Service is £300,000. This figure excludes all those items which are in the nature of annual charges and presumably refers only to capital expenditure. In a hurried examination of the Estimates I have been able to account for £608,956 to be spent in the next year on the Air Service. This excludes all such charges as are hidden under Clothing and Victualling Votes, and are not therefore stated specifically.

The following is a brief précis:—

Vote 1. Wages, etc., of Officers and men. Extra remuneration to personnel of R.F.C.	£ 34,500
Extra remuneration to R.M. Officers and men in R.F.C.	8,335
Vote 7. Royal Naval Reserves. Pay of (15) Officers and men, R.N.R. in R.F.C.	3,900
Reserve pay of (4) Officers, R.N. and R.M.	200
Vote 8. Shipbuilding, etc. Construction of Aircraft (and repairs)	375,000
Vote 10. Works and Buildings. Aviation Establishments, and accommodation for Aircraft, etc. ...	181,650
Vote 12. Admiralty. Subhead A. Air Department...	5,371
	<hr/> £608,956

Questions in the House.

On March 11th, at Question Time:—

Mr. JOYNSON-HICKS asked what is the number of water-cooled engines in efficient use by the Royal Flying Corps; and whether he has any information as to the number and high standard of reliability of these engines as used in the German flying corps?

Colonel SEELY: One is in actual use and twenty-four others are being fitted into the twenty-four aeroplanes under construction at the Royal Aircraft Factory. I have no information as to the number in use in the German flying corps, or as to the results obtained, but the high standard of reliability of the engines in question is recognised.

Mr. JOYNSON-HICKS asked what number of civilians have been enlisted as mechanics, fitters, etc., in the reserve of mechanics, Royal Flying Corps; and what steps have been or will be taken to give these men some idea of military discipline and organisation?

Colonel SEELY: It is proposed to open Category (a) Special Reserve shortly for the enlistment of mechanics, etc., for the Flying Corps. Those enlisted will be called up for certain amount of training every year.

Mr. JOYNSON-HICKS: Am I to understand that nothing has been arranged yet, and that no civilians have been enlisted at the present moment?

Colonel SEELY: I cannot add anything to the answer I have given.

Mr. JOYNSON-HICKS asked how many aeroplanes are now in use by No. 6 Squadron of the Royal Flying Corps; and whether permanent hangar accommodation is to be provided for the aeroplanes of this squadron?

Colonel SEELY: There are fourteen serviceable aeroplanes in use. They are accommodated in permanent hangars.

The Inquest on Mr. Gipps.

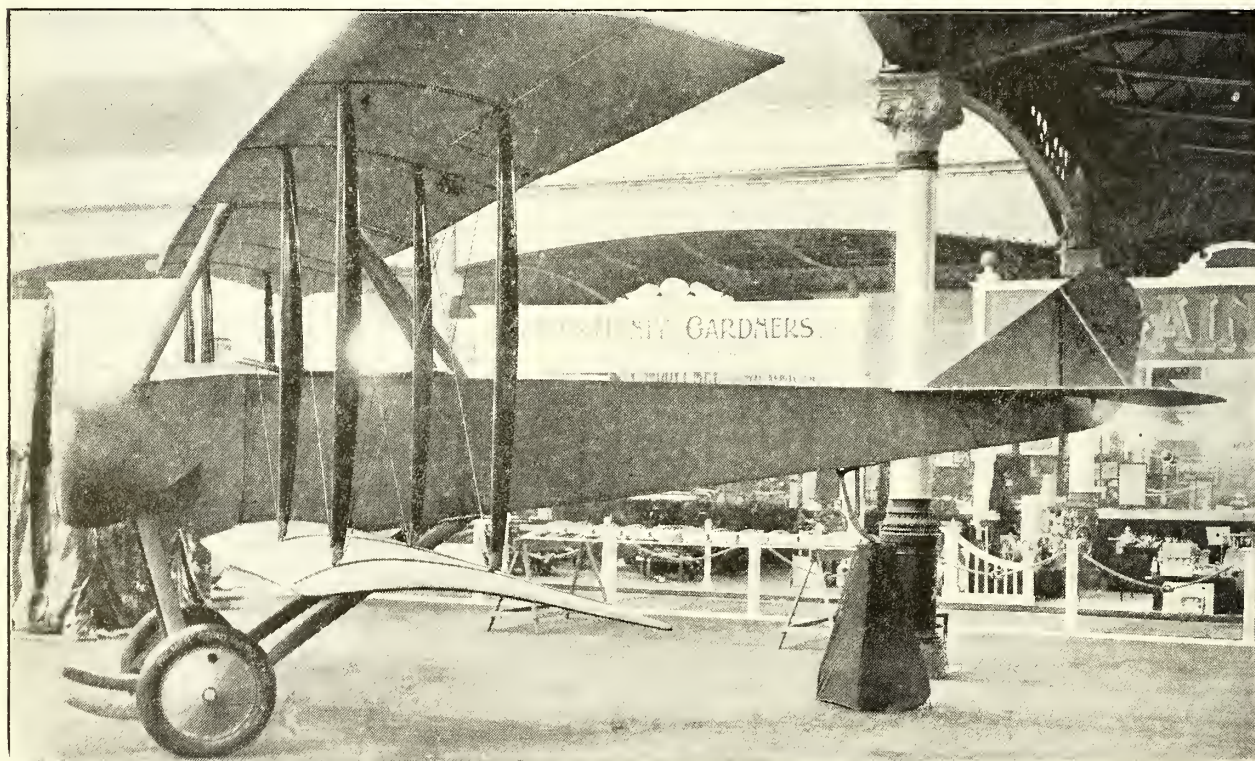
The adjourned inquest on the late Mr. G. Gipps, who was killed at Larkhill on a Bristol School monoplane on January 26th, was concluded on March 13th.

Mr. Merriam, who was injured in the fall of the dual-control biplane, said he was piloting and directed Mr. Gipps to follow his movements, but found that he was holding the controls tightly. In turning, Gipps must have released the rudder bar, and the machine dived. His efforts to save the machine were hampered because Mr. Gipps still held the control tightly.

A verdict of "Accidental death" was returned.

A New Book.

Messrs. Longmans, Green and Co., have just published "Flying: Some Practical Experiences," by Mr. Gustav Hamel and Mr. Charles C. Turner. It is proposed to review it in a later issue, but in the meantime it may be taken that the book, which is beautifully illustrated, is quite the most practical work on aviation that has yet appeared. The price is 12s. 6d., and it is on sale at THE AEROPLANE stand at Olympia.



The Eastbourne Aviation Company's neat tractor biplane, with steel chassis and the new Palmer cord tyres.

The Week's Work.

Weather Report for Week Ending March 15th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Rain Wind	Wind	Wind	Gale Rain	Wind	Gale Rain	More Gale
Calshot ...	Wet	Fine	Fine	Fair	Rain Wind	Hurri- cane	Worse
Eastchurch ...	Wet	Fine	Fine	Fair	Rain Wind	Hurri- cane	Worse
Hendon ...	Rain	Fair	Fair	Windy	Wind Wet	Gale Rain	Gale
Liverpool (W'loo) ...	Calm	Wet	Calm	Wind	Wind	Wind	Wind
Montrose ...	Bright	Bright	Bright	Hazy	Dull	Storm	—
Salisbury Plain	Snow Rain	Wind	Gusty	Wind Rain	Hail Gale	Gale Hail	More Gale
Shoreham ...	—	—	—	—	—	—	—
Windermere ...	—	—	—	—	—	—	—

School Reports.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Howarth and Cripps. Pupils, with instructor on machine: Messrs. Kershaw, Tapps, Cowley, Robinson (new pupil), and Prince Sapieha. 8's or circo alone: Messrs. Bjorkland, Graham, Norris, Lillywhite, Lieut. Lindop. Machines in use: G.-W. school biplanes.

AT EWEN SCHOOL.—Instructors during week: Messrs. F. W. Goodden and W. T. Warren. Pupils doing strts or rolls alone: Messrs. G. Carruthers, F. Curtis, R. G. Garvin and R. H. Verney. 8's or circo alone: Messrs. D. G. Murray and J. Bankes-Price. Certificate taken: Mr. D. G. Murary. Machines in use: 35-h.p. Caudron biplanes. Mr. F. W. Goodden gave an excellent exhibition flight on 45-h.p. Caudron on Thursday afternoon.

AT BEATTY SCHOOL.—Instructor during week: Mr. Baumann. Pupils with instructor on machine: Messrs. Bentley (43 mins), Elverson (10 mins), Garvin (14 mins), and W. R. Ding (15 mins). Machines in use: Wright biplanes.

AT HALL SCHOOL: Instructor during week: Mr. Hall. Pupils at work: Messrs. Merrish, Palmer, A. L. Brookes, Vergilio, Gering, Arrier, Gore. Strts alone: Messrs. Merrish, Palmer and Brookes. 8's or circo alone: Messrs. Brookes, Palmer. Machines in use: Avro and Caudron. Mr. Allen's Blériot to be out this week.

Brooklands.—AT VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Elsdon and Knight. Pupils with instructor on machine: Lt Mansergh (7), Lt Acland (6), Comte Fitz-James (7), Mr. Wilberforce (5), Lt Leighton (5), Capt Phillips (2), Mr. Murray (3), Mr. Hurst (2). (All biplane.) 8's or circo alone: Mr. Webb (1), Mr. Hinshelwood (1), Mr. Chataway (1) (monoplane). Machines in use: Two propeller biplanes; one monoplane.

AT BRISTOL SCHOOL: Instructors during week: Messrs. Merriam and Halford. Pupils with instr on machine: Srgt Deane, Mr. Jacques. Strts alone: Srgt Deane, Mr. Jacques. 8's or circo alone: Srgt Deane, Mr. Jacques. Bad weather nearly all pupils away. Messrs. Merriam and Halford both made flights across country.

AT SUNBEAM CO.—Mr. Alcock arrived back from Eastchurch on Wednesday with Mr. W. Ranger as passenger, through thick fog, and on Thursday made a fine moonlight flight with Mr. Bailey as passenger over Staines and Walton at 2,000 ft. on 100-h.p. Sunbeam Maurice Farman.

Eastchurch.—On Tuesday the Hon. Maurice Egerton on Short, Professor Huntington on own machine.

On Tuesday, Mr. Alcock on Sunbeam-engined Maurice Farman, flying for 1 hr.

Liverpool (Waterloo).—Instructor during week: Mr. H. G. Melly. Pupil strts or rolls alone: Mr. C. J. Crean. Machine in use: Blériot mono. Isaacson engine now fitted to two-seater and Mr. Melly made a couple of flights at 500 ft. of 7 mins. and 5 mins. on Wednesday. Awaiting better weather for long test.

Salisbury (BRISTOL SCHOOL).—Instructors during week: Messrs. Busted, Sippe, Jullerot, and Voigt. Pupils with instr on machine: Lts Barrett, Bolitho, and George, Messrs. Hay, Chambers, and Delaplane. 8's or circo alone: Lt Barrett, Mr. Delaplane (old pupil back to learn tractor) at 1,500 ft. Machines in use: Two propeller biplanes; two tractor biplanes. Mr. Busted testing 80-h.p. "Scout," flying exceedingly well.

Shoreham.—AT PASHLEY SCHOOL: Instructor during week, Mr. C. L. Pashley. Mr. Gray taking control behind pilot. Wind very high all week.

Windermere.—AT LAKES FLYING CO.'s SCHOOL: Mr. Lancaster took out "Water Hen" several times, usually with a passenger.

Flying at Hendon.

Bright weather and a large attendance favoured Hendon for Messrs. Hamel and Hucks' joint demonstration of "vol de fantasie" on Thursday. Mr. Hucks was the first up on his 50 Gnome Blériot looper, and despite the stiff wind executed a total of 17 loops in one flight, in three sets of 3, 8 and 6 successive loops. On Mr. Hucks' descent Mr. Hamel went up for a quarter of an hour flight on his Morane-Saulnier, executing pirouettes on his wing tips, loops, sideways loops, tail slides, and other quaint evolutions. Both pilots then took the air together and did their upside-downest.

On Saturday, trouble with Mr. Hamel's engine delayed his start till a deluge of rain rendered flying impossible, and any attempt to watch it unprofitable, so that looping was postponed. Before the downpour, despite the high wind, Messrs. Noel, Carr, Cripps, and Birchenough put up a series of exhibition flights, so that the assembled multitude departed not quite empty and certainly by no means dry.

On Sunday Mr. Hamel looped to amuse his friends, and the only other pilot who flew was Mr. Noel, the air being unfit for human habitation.

Mr. Hucks at Northampton.

On Thursday, Friday, and Saturday, March 26th, 27th, and 28th, Mr. B. C. Hucks will give demonstrations of looping-the-loop and upside-down flying at Delapre Abbey Park, London Road, Northampton, commencing at 3 p.m. each day.

British Curtiss Engines.

White and Thompson, Ltd., of Bognor, the owners of the British rights for the "Curtiss Flying Boats" and engines, announce that the flying-boat they are building for the "Circuit of Britain" is to be equipped with two 100-h.p. Curtiss engines, which are being built by the Austin Motor Company, of Northfield, Birmingham, the makers of the celebrated Austin cars. The high quality of the Austin Co.'s products assures that the results already achieved by the American engine will at last be equalled by the British-built engine.—A. B.

Photographs of Aeroplanes at Olympia.

All the photographs of the aeroplanes and engines at Olympia in this and the succeeding issue have been taken by Mr. F. N. Birkett, 97, Percy Road, Shepherd's Bush, N.W. Whole-plate copies of any such photographs in this paper can be obtained price 1s. 3d. unmounted, post free, from Mr. Birkett.

Rubery, Owen and Co.

It is a hackneyed proverb that what is worth doing is worth doing well, but those who have examined the fine pressed steel engine housings produced by Messrs. Rubery, Owen and Co., will realise that this must be the firm's "rule of life," for the manufacture of aeroplane framework, etc., is a very small affair to a company which applies itself to the construction of steel bridges, steam and electric navvies, sewage and filtration plants, motor-car and wagon frames, etc. Now that pressed steel work is becoming so much more used in aeroplanes, one may expect ere long to find the whole of the body-work of an aeroplane pressed out of sheet metal, and certainly no one is more competent to execute such work than are Rubery, Owen and Co. Small work also receives equal attention, for the firm's patent quick release gear for aeroplanes, which allows a pilot to anchor his machine and start up without assistance, is one of those minor details which ought to be a standard fitting to every machine.

J. BONN & CO. Ltd. 97 New Oxford Street, LONDON, W.C.

The Reliable Firm for HIGH CLASS MODEL AEROPLANE ACCESSORIES.

ILLUSTRATED CATALOGUE ON APPLICATION.

PROPELLERS A SPECIALITY. Any Type or Size built to Customers' Instructions.

Hollow Spars of all descriptions built to instructions.

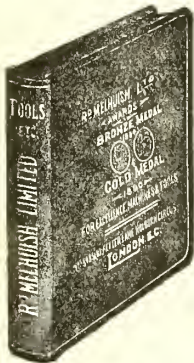
Appointed by CELLON, Ltd. Sole Agents for Cellon Dope No. 14 for Model Makers; Cellon Varnish No. 13 for Wood Work; Cellon Sheet '125 m/m thick for Model Floats, etc.

PRICES ON APPLICATION.

TOOLS.

NO USER OF TOOLS CAN AFFORD TO BE WITHOUT OUR NOTABLE CATALOGUE OF LABOUR SAVING TOOLS.

"Recollection of Quality remains long after the price is forgotten."



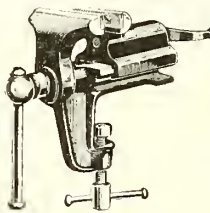
WRITE FOR NEW ENGINEERS' AND METAL WORKERS' (ALL TRADES) CATALOGUE NO. 20.

Contains 560 pages. ENTIRELY FREE on receipt of 1/- to defray cost of post and packing.

NEW WOOD WORKERS' NO. 21.

6d. postage. 338 pages.

LARGEST STOCK OF TOOLS AND GENERAL FITTINGS IN GREAT BRITAIN.

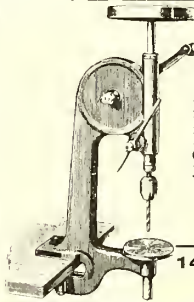


Size	2 1/8	3 1/4 in. Jaw.
Weight	6	7 1/2 lb.
Price	11/-	13 6

No. 1392. This is a new feature in Bench Vices.

They are made of steel and unbreakable. Another excellent point is the instantaneous action.

It saves time and money.



HIGH-SPEED DRILLING MACHINE:

	No. 2456
Height	31
From table to chuck	3 1/2
From chuck to frame	4
Capacity of chuck	1/2
Price	42

Illustrated Sheets of any Tools and Accessories, sent Free.

143, HOLBORN-BARS.

ESTABLISHED 1828.

TOOLS, MACHINERY AND HARDWARE MERCHANTS.
50-51, 84, FETTER LANE, LONDON, E.C.

R. MELHUSH, LTD.

BOOKS TO READ.

All About Airships. By Ralph Simmonds. Price, 6s.

The Romance of Aviation. By Charles C. Turner. Price, 5s. net.

Flying—The Why and Wherefore. By "Aero-Amateur." Price, 1s. net.

Flying—Some Personal Experiences. By Gustav Hamel and C. C. Turner.

Stability in Aviation. By G. H. Bryan, Sc.D., F.R.S. Price, 5s. net.

Artificial and Natural Flight. By Sir Hiram S. Maxim. Price, 5s.

Monoplanes and Biplanes. By Grover Cleveland Loening, B.Sc., A.M. Price, 12s. 6d.

My Three Great Flights. By André Beaumont. Price 10s.

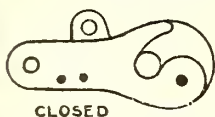
Order them at

"The Aeroplane," 166 Piccadilly, London, W.C.

RELEASE GEARS for AEROPLANES

AERO EXHIBITION, Olympia. Stand No. 17.

REG. PATENT NO 17090-11.



CLOSED



OPEN

SPECIAL STEEL STRAINERS, EYEBOLTS BOLTS and NUTS, ETC. ALSO ENGINE HOUSINGS, and STEEL TUBE WORK.

Prices and Catalogue Free.

RUBERY, OWEN & CO. DARLASTON, SOUTH STAFFS
Manufacturers of Aeroplane Accessories.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.

Special PREPAID Rate—18 words 1/6; Situation Wanted ONLY—18 words 1/- 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions. Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6 1/2 miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

W. H. EWEN SCHOOL OF FLYING.
W. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to **HALL AVIATION CO.,**
London Aerodrome, N.W.

HERBERT SPENCER FLYING SCHOOL, Brooklands Aerodrome, Weybridge. Tuition and practical constructional work. £50. Passenger flights from £2 2s.

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.
Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

(See page 285.)

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from **THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.**

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

ENGINES

FOR sale, 50 h.p. Gnome; condition as new; six months' full guarantee; may be tried before purchase.—"Z," S, Mount Road, Hendon.

FOR sale, at gift prices, 25 h.p. air-cooled motor, propellers, coils, magnetos, wheels, tubes, tanks, strainers, wire, tools, and numerous oddments.—Box 541, **THE AEROPLANE, 166, Piccadilly, W.**

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London.** Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE, 166 Piccadilly, W.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road.** Phone 4770 Wall.

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1 6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.

MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 3, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MONOPLANE, size 31 inches by 24 inches. Price 5s. Flights of nearly a ¼-mile have been obtained with this model. Set of parts, with drawings for building above model, 2s. 6d.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

Phone: Kingston 569.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our **New Illustrated Models Catalogue** now ready. Contains Sopwith Tractor, Deperdussin, Bleriot, Canard, Clarke Mono, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic rod per doz. yds

S. J. KEMP & Co.,

CROWN WORKS, Kingston-on-Thames.

(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)

Every Requisite for Model Aeroplanes. Send 1d. for List.

Models of Every Description built promptly.

Phone 321 Kingston. Telegrams "Garage, Kingston-on-Thames."

COMBINED DEMONSTRATIONS OF
“LOOPING THE LOOP”
 TO BE REPEATED
AT HENDON.

By Mr. B. C. HUCKS and Mr. GUSTAV HAMEL

On THURSDAY, MARCH 19th—DESOUTTER BENEFIT MEETING

At 3.30 p.m. (Weather permitting)

Also 20 MILE CROSS COUNTRY RACE.

ADMISSION 6d., 1s., and 2s. 6d.
 (Children Half Price)

MOTORS 2s. 6d.
 (Includes Chauffeur)

WINTER SEASON—RACES EVERY SATURDAY

Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).

PASSENGER FLIGHTS DAILY FROM £2 2 0.

The London Aerodrome Hendon

Proprietors: The Grahame-White Aviation Co., Ltd.

HENDON: 'Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."

LONDON: 166, Piccadilly, W. 'Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."

COMING EVENTS.

Sat., March 21st. AERO SHOW SPEED & CONTEST. ("Shell Trophy.")

Sun., Mar. 22nd. AERO SHOW SUNDAY.

Sat., March 28th. SPRING MEETING.

**GRAHAME-WHITE
 AEROPLANES AND
 HYDRO-AEROPLANES**

STAND
 No.
40
 OLYMPIA
 AERO
 SHOW

WINNERS OF
 THE BRITISH MICHELIN TROPHY, 1913
 AND HOLDERS OF
 WORLD'S RECORD
 (PILOT AND NINE PASSENGERS)

Illustrated Catalogue on application.

THE GRAHAME-WHITE AVIATION CO., LTD.

THE LONDON AERODROME, HENDON, N.W.

Telephones: 120 KINGSBURY (4 lines). Telegrams: VOLPLANE, HYDE, LONDON

London Offices: 166, PICCADILLY, W.

Telephone No.: 5955 MAYFAIR. Telegrams: CLAUDIGRAM, PICCY, LONDON

THE AEROPLANE

Edited by CHAS. G. GREY. ("Aero-Amateur")



VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWS-PAPER.]

THURSDAY, MARCH 26, 1914.

No. 13

ANOTHER VIEW OF THE AERO SHOW.



View from the North-West Corner, showing the Sopwith Wings, the Bristol biplanes and the repair wagon, and, in the distance, the Perry-Beadle, Farman, Grahame-White, and Wight machines.

NIEUPORT (ENGLAND) LTD.

AEROPLANE MANUFACTURERS

100 h.p. SEAPLANE AS USED BY THE
FRENCH NAVY

Same type as the TWO machines flown in the **MEDITERRANEAN CROSSING**
(12th MARCH, 1914)

ST. RAPHAEL to AJACCIO (CORSICA)

By **C^R. de l'ESCAILLES** and **C^R. DESTREM**
OF THE FRENCH NAVY

160 Miles in 2 hours 45 mins.

80 h.p. TWO-SEATER (Passenger in front)
MILITARY TYPE

A FEW NIEUPORT PILOTS

MAJOR FELIX

G.M. DYOTT

LEGAGNEUX
Holder World's Height Record

HELEN
MICHELIN INTERNATIONAL CUP
1911 & 1913

BONNIER
PARIS TO CAIRO RECORD
FLIGHT WITH PASSENGER

LEVASSEUR
RECORD HYDROAEROPLANE DISTANCE
FLIGHT WITH PASSENGER

BONNIER flying over the Pyramids on his **80 h.p. NIEUPORT**

60 h.p. SINGLE-SEATER SCOUT AS USED BY THE
FRENCH ARMY

100 h.p. SKIMMER FOR USE IN SHALLOW WATER

Address all enquiries to the Managing Director:

MR. ALBERT PICARD, 45, Gt. Marlborough Street, LONDON, W.

Telegrams: "Nieuplane, London."

Telephone: Regent 5210 (2 lines).

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all newsagents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.				ABROAD.			
	s.	d.			s.	d.	
3 months, post free	1	8		3 months, post free	2	9	
6 " " "	3	3		6 " " "	5	6	
12 " " "	6	6		12 " " "	11	0	

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Human Side of the Aero Show.

Presumably, now that the Aero Show is practically over, no one wants to be bored by disquisitions on the results of the Show itself, or on the development of the aeroplane industry, so one may as well give the serious side a rest and relate haphazard a few of the odd occurrences of the past week, more in relation to the human than to the mechanical side of the Show. Some of us felt quite grieved at the lack of comic relief. All our aeroplanes are becoming so practical and businesslike that there is very little that is really amusing about them, and one misses the charm of the old days when an enthusiastic student of bird flight performed weird dances, of the type known as classic, up and down the central alley, waving the while a pair of swan's wings to demonstrate how and why they lift. Also, we have nothing like the attempt by a gentleman from Bristol to make a kind of wire mattress fly. He was, I think, before even the formation of the British and Colonial Company, and so, if he is alive, may claim to be Bristol's pioneer constructor. And, we have nothing like the sportsman who once showed a huge flapping-wing machine, as big and as roughly built as a bedstead, which was going to make great flights with a little 2-cylinder 5-h.p. Buchet engine, or something of the sort.

Many people seemed to find the quaint appearance of the "supermarine," apparently crouching for a spring from under the end gallery, the most amusing thing in the Show, and there certainly was something of the comic in the tip-tilted nose and round goggly face of the egg-like engine casing, which probably accounts for the confusion of ideas in the mind of an Italian friend of mine who asked me quite seriously, "What is this that it is at the end of this allée, this Pemberton Billiken?"—at least, I suppose he was referring to the machine. By the way. One young gentleman who always knows what is going on in the trade, assured me that this machine had not been sold to Mr. Harry Tate. He was very vehement about it, and I told him that no one thought it had been. Mr. Tate is not a motor-boatist.

As in this case, it was the visitors who provided most of the amusement to those who had to spend the week in Olympia. Mr. Leo Harris, who has already made the Motor Radiator Manufacturing Company's products as well known in the aeroplane industry as they are in the motor trade, was approached one day by a somewhat nervous young man, accompanied by a charming little lady, who inquired, "Er! Which of these—er—radiators would, d'you think, be most suitable for—er—warming, say, a fourteen-room house?" Mr. Harris explained to him that the radiators were used for cooling. "Ah! How strange! I've never heard of cooling a house with radiators," said he. Then he gradually grasped the idea that the radiators were intended for engines, and that he had not fallen into the Ideal Homes Exhibition. And the damsel, somewhat cruelly, smiled.

On another occasion a dear old lady gazed intently at the Henri Farman nacelle, which was equipped with dual control and exhibited on the floor level to facilitate inspection. Then she turned to one of the attendants and asked, "Please tell me. How many people does this pretty little blue boat hold?"

The reply is not recorded.

Elsewhere, a gushing young thing fell in love with the little Avro scout, with the air-brakes and back-swept wings, and turning to her companion, ejaculated, "Isn't it a little darling?" I wonder what she would say if she found herself in the middle of an aerodrome with the said "little darling's" fierce-looking round nose rushing across the ground at her at about ninety miles an hour, or if she was one of the crew of a 60 miles an hour "fighting aeroplane," with the "little darling" in pursuit, armed with a sawed-off shot-gun loaded with buck-shot. Probably "the little devil" would be a more appropriate name for it under either circumstance, if it flies as fast as its appearance indicates, and as its designer intends. It will be very interesting to see whether it equals or beats the highly successful little Bristol "scout" of the same power, designed by Mr. F. S. Barnwell, though, as the latter is Mr. Barnwell's first attempt at design, one may expect something quite phenomenal next time.

"Jonah's Whale" is, of course, now the recognised nickname for the fish-like Perry Beadle biplane, and, happily, the makers, being sane individuals, who regard their beautifully-built machine simply as an experiment, do not mind. But the real jest on their stand was a very knowledgeable clergyman who explained the machine very fully to some of his "dear young friends," and when he came to the guide-tubes for the chain-drive of the twin propellers, explained that, "of course, those tubes are for the electricity."

Incidentally, there is no doubt about the advantages of driving with two or more small propellers instead of one very big one, so will some of our wealthy firms please experiment with a hydraulic propeller-drive from a central power-plant? For big machines there are vast possibilities in using hydraulic transmission, which can be made about 97 per cent. efficient, instead of chains.

One of the quaintest remarks of the week came from a certain good lady, without whom Brooklands would find it hard to exist. When I asked her what struck her most about the Show, she said, "It's so funny to see everybody from Brooklands looking so clean." Without being intentionally rude, it was decidedly apposite, and, to tell the truth, it did not occur to one before that some of one's friends whom one usually sees in oily overalls, or aged suits contemporaneous with the design of their own box-kites, could suddenly appear as smart young men about town.

Rather a nice piece of description was turned out by one of the Army pilots, who, discussing the almost supernatural affability of a certain gentleman connected with military aviation, said, "He's the sort of chap, who, if you tarred and feathered him, would pick off the feathers and hand them to you, and say, 'Your feathers, I believe.'" Which reminds one of a description of Colonel Seely's suave manner by one of our leading constructors when someone said the Secretary of State for War would have a job to explain away some of the R.A.F.'s latest troubles. Said the constructor: "Oh! Seely will put on his force-feed lubrication and oil it all over."

The King was responsible for a jest at the expense of the Clement-Bayard monoplane, which was shown without its tyres, owing to some foolishness on the part of the French

packers. Mr. Harry DeLaCombe having demonstrated the advantages of armoured aeroplanes, explained that the machine was built entirely of steel, at which point the King remarked: "Presumably that is why you don't fit pneumatic tyres," and then more explanations were given.

The young gentleman who knows everything was somewhat in evidence, as usual, but one of him missed his way badly on the Sopwith Bat-boat. The 200-h.p. Salmson engine is fitted with a self-starter, deriving its power from compressed air bottles charged up to about 2,000 lbs. to the square inch. On one of the struts is a tiny wind-mill driving a pump to convey petrol from the big tank below to the little gravity tank above the carburettor. The intelligent youth grasped the idea of the two air bottles readily enough, and explained them to his fair companion, but the little propeller of the wind-mill found the weak spot in his knowledge, so he told the lady that it was used for charging the air-bottles. Ingenious notion, but 2,000 lbs. to the inch would be trying it rather high.

Also, there was some real business done at the Show. An elderly gentleman, going all the stands thoroughly, suddenly spotted some wire strainers shown on the Hewlett and Blondeau stand, and bought quite a number. He scarcely looked like an aviator, or even a constructor, so the seller was a trifle puzzled why they were bought. However, the old gentleman explained that he had been trying for ever so long to find some way of keeping his big pictures level on the walls at home, and these were the very things he had been looking for. One is glad to find that Aviation can assist Art, even in so humble a way.

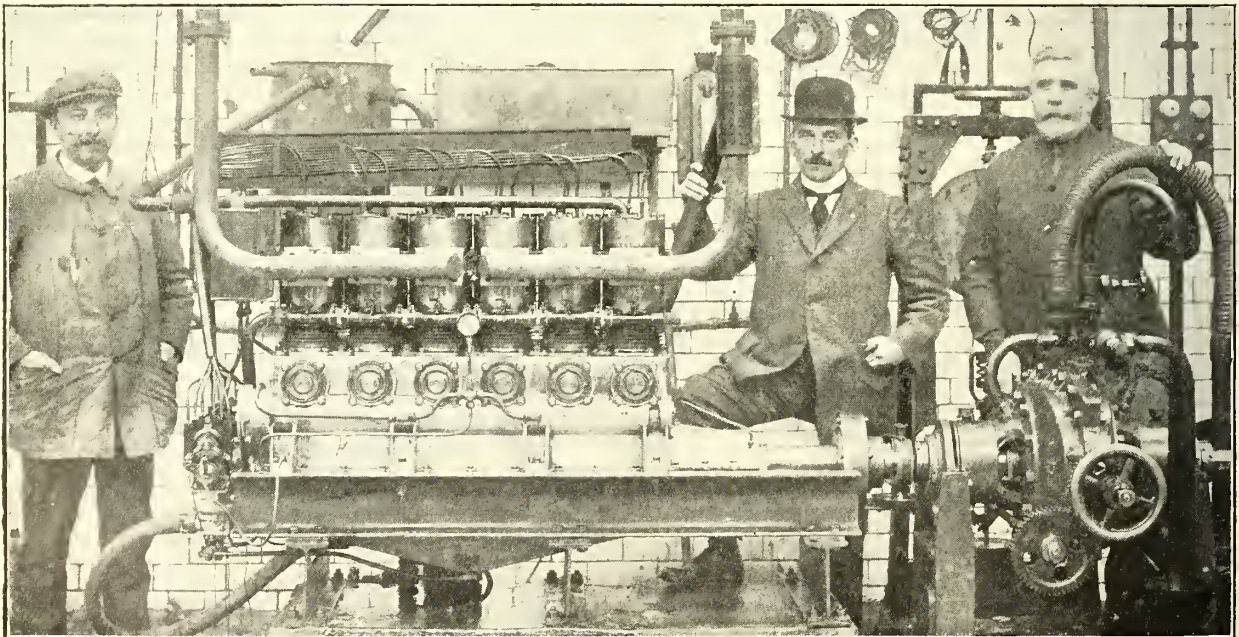
It was highly satisfactory to find, towards the end of the week, there was quite a crowd of interested people in the Show in the afternoons and evenings. One is not used to crowds at aero-shows, and one exhibitor complained to me that they were really rather a nuisance, because the people got in his way so when he wanted to run up and down the alley-ways to warm himself. Earlier in the week, before Mr. C. D. Clayton's press campaign had properly sunk into the brains of the British Public the attendance was, to put it mildly, sparse; and as he stood gazing at the long strip of green matting, Mr. Clayton remarked, "I suppose one might draw a crowd to an aero-show if one could get a monkey to loop the loop on a model." Verily, Cee-Dee, as he is familiarly

called, knows the people of London better than does the sanguine enthusiast for aviation. However, Cee-Dee's influence with the Press did a great deal for the Show, and on Saturday evening the Show was inconveniently full of people—in spite of that poster.

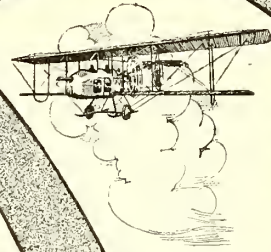
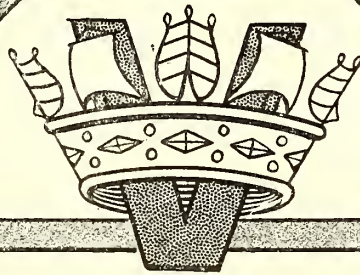
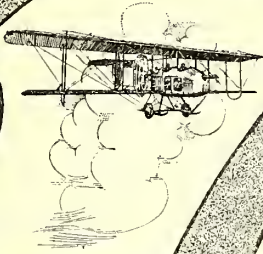
Incidentally, the said Mr. Clayton's influence with the Press is a sad and regrettable thing, for he is engaged in the wicked profession of an advertising agent—I beg his pardon, I mean "publicity expert"—and, of course, as such, should be an abomination before the Lord Editor of any respectable paper, where the Editorial Department knoweth not what the Advertising Department doeth. Unhappily, the British Press is rapidly becoming commercialised in these degenerate days, and I find from a knowledge of various papers that unless the Editorial Department keeps a close watch on the Advertising Department the Advertising Department is likely to acquire such a position that the Editorial Department is afraid to have any pronounced opinions of its own on any subject. Besides, Advertisement Departments do make such silly mistakes sometimes, and, after all, the duty of an Editor is to edit. Isn't it?

However, taking it by and large, the Show has done good. I have not heard of a rush of gilded youths to buy racing "tabloids," nor of wealthy sportsmen buying family seaplanes for coastwise trips, but I met a surprising number of foreign officers who were over here to buy British aeroplanes if they found that some of the recent performances on British aeroplanes were put up on machines which maintained the reputation which British workmanship still holds abroad. Most of them seemed satisfied, and I know of one or two of our best firms which refuse to discuss the question of selling a sample machine to a foreign Power. This is rather a sound idea, for a single machine may only be bought to be copied, whereas an order for half-a-dozen means that it is worth the constructor's while to increase his workshop space, and so when they are delivered he is able to turn out more for our own Services than he could have done if he had not accepted the foreign order.

By the way, talking of Service orders, reminds one that some of our big firms like Armstrong-Whitworths and the Coventry Ordnance Works, who have turned their attention solely to making machines to the designs of the Royal Aircraft Factory, and others who have rather let their own



The Argyll Aero Engine on test at the Alexandria Works. The portraits are, from left to right, M. Henri Perrot, Chief Engineer and Designer; Mr. J. S. Matthew, Managing Director of Argylls Limited; and Baillie P. Burt, the inventor of the single-sleeve engine.



LEARN TO FLY

AT THE

VICKERS FLYING SCHOOL, BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

STAND No. 66,
Aero Exhibition, Olympia.

VICKERS Limited,

Aviation Dept., Vickers House,
Broadway, Westminster, S.W.



VICKERS Flying School,
Brooklands.

designs hang fire while so busy on B.E.s, might do well to push ahead with their designers' own ideas. If, as seems possible, a Committee is called to sit on B.E.s, and if it and the publication of its report sits on them as effectively as monoplanes were sat upon in 1912-13, it rather seems as if work on B.E.s is not going to provide much employment for a while.

And anyhow, I know myself that very many experienced pilots of the Royal Flying Corps have absolutely lost faith in R.A.F. designs. They are getting to know about all those elevator-flaps on the new R.E.s, with 120-h.p. engines, which bent under test when flying, and the criminal ignorance of a designer who will use 22-gauge tube anywhere in an aeroplane, let alone in a rudder-post of about an inch diameter, has not inspired confidence in Colonel Seely's much-admired friends. Consequently, any firm which can produce a really well-built and efficient aeroplane has a much better chance of doing business now than it ever had, for the R.F.C. will probably welcome anything which is really good.

Also, the Admiralty, which rejected the B.E.s built by the R.A.F. because of bad material, design, and workmanship, is always ready to buy any machine which is soundly built and shows promise of developing or testing new ideas. Now, if ever, is the chance for the clever designer in the employ of the independent constructor, and it is worth any firm's while to give such men their heads a bit, whether it be in designing fast military "scouts" or seaplanes of colossal power.

One hopes that by the time the next Aero Show opens we shall find all the present exhibitors in a most flourishing state and that there will be many new firms added to the number of exhibitors. Then we can have a real aeroplane show, without bumping up against large motor-boats at every corner, and without being offended by their effete engines weighing about twenty pounds to the horse-power when ours weigh about two.

We in the aeroplane industry have much to do in the next twelve months. The "Trade" is now on trial. Let us hope it will make good.—C. G. G.

Accessories at Olympia.

The Aircraft Mfg. Company show a "Coursin" sighting gear for dropping bombs from aircraft. This apparatus consists of a large wide angle photographic lens which forms an image of the country over which the aircraft is operating on a ground glass focussing screen. The image of any one object travels across the focussing screen at a speed which depends on the actual land speed of the aircraft at the time, and also its height above the object, and on the angle between the vertical line from the lens and the line between the lens and that object. Underneath the focussing screen and visible to the observer is a thin thread, having on it knots at short intervals, which is driven along the screen by a small motor at a speed which is regulated by a thumb-screw, and partly according to the height (determined by the barograph) of the machine.

Approaching the object to be aimed at, the image on the screen inside the apparatus is watched in its passage across the screen until the position is found in which the image moves at the same speed as the knots are moving, and a sighting pointer, communicating with the speed-regulator of the

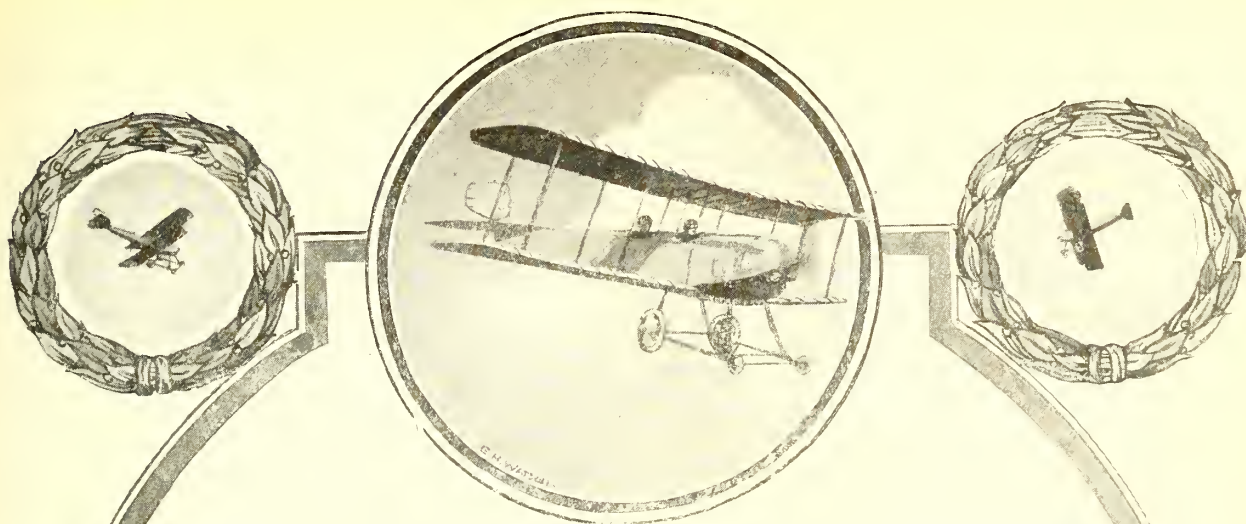
knotted string, is set to that position on the focussing screen. When the image of the object to be aimed at reaches the pointer so set the bomb is dropped.

The whole of the corrections for land speed of machine and for height are automatically made by the apparatus without any calculation whatever. This appliance was used by the winners of the first and second prizes in the Michelin Bomb-Dropping Competition, and is quite reliable if the level of ground between the starting point of the aeroplane and the object aimed at does not vary over much.

The Aircraft Company also show what is called a Safety Bomb, which does not indicate that it is safe to have this bomb dropped on one, but that it is fitted with a fuse which does not become "alive" for some appreciable time after the bomb has been falling freely. The bomb is of a streamline form and is fitted with a four bladed tail, the blades having a slight twist, which causes the bomb to spin while falling, and the fuse is made sensitive to impact by the action of a kind of centrifugal governor when the rate of spin has reached a certain value.



The Aircraft Manufacturing Co.'s Stand with the Henri and Maurice Farmans and the accessories referred to above.



THE MOST INTERESTING EXHIBIT
AT OLYMPIA IS

STAND 43

**THE BRITISH & COLONIAL
AEROPLANE Co., Ltd.**

CONTRACTORS TO
THE BRITISH WAR OFFICE AND ADMIRALTY

Also to the Governments of

RUSSIA, GERMANY, ITALY, SPAIN,
TURKEY, BULGARIA, ROUMANIA,
AUSTRIA, ETC.



LEARN TO FLY ON THE BRISTOLS

AT THEIR FLYING SCHOOLS AT
SALISBURY AND BROOKLANDS.

THE SAFEST AND MOST UP-TO-DATE SCHOOLS IN THE COUNTRY.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Anglo-American Oil Company show emerald-green cans of Pratt's Motor Spirit, that is to say, the atmosphere of Olympia acts as a sort of locum tenens for the actual spirit, which, of course, it would be dangerous to have on the stand. The excellent qualities of Pratt's spirit are too well known to need elaborating here, and many great flights have been made under its persuasive power.

Bluemel Bros., Ltd., show a case of steering wheels for motor-boats and aeroplanes, and a range of accumulators. An interesting feature is the Bluemel "Mascot" Sparking Plug, which has a patent Steatite insulator, which, it is claimed, cannot possibly blow out. It has a two-point spark gap with nickel points, and the body is of rustproof steel.

The British Petroleum Co. have a tastefully decorated stand embellished with hundreds of sea shells notifying the fact that they supply the world renowned "Shell" motor spirit. Several of the well-known scarlet petrol cans are on view, and also a model of an oil-tank steamer.

Brown Bros., Ltd., have on view a large assortment of tools which are applicable to the work of maintaining and repairing any form of petrol motor and many of much more general application. Two very useful lathes whereon much more intricate work than the ordinary run of repair work could be carried out are shown, and a really useful-looking radial drilling machine is shown as well as small tools, too numerous to mention.

Bolts and nuts of all sorts and sizes, rivets, steel, copper, and aluminium, handy tools for carrying out such annoying operations as grinding in valves and trueing up their seats, are amongst the features which render this stand of interest to everyone who has ever to deal with a petrol motor of any kind.

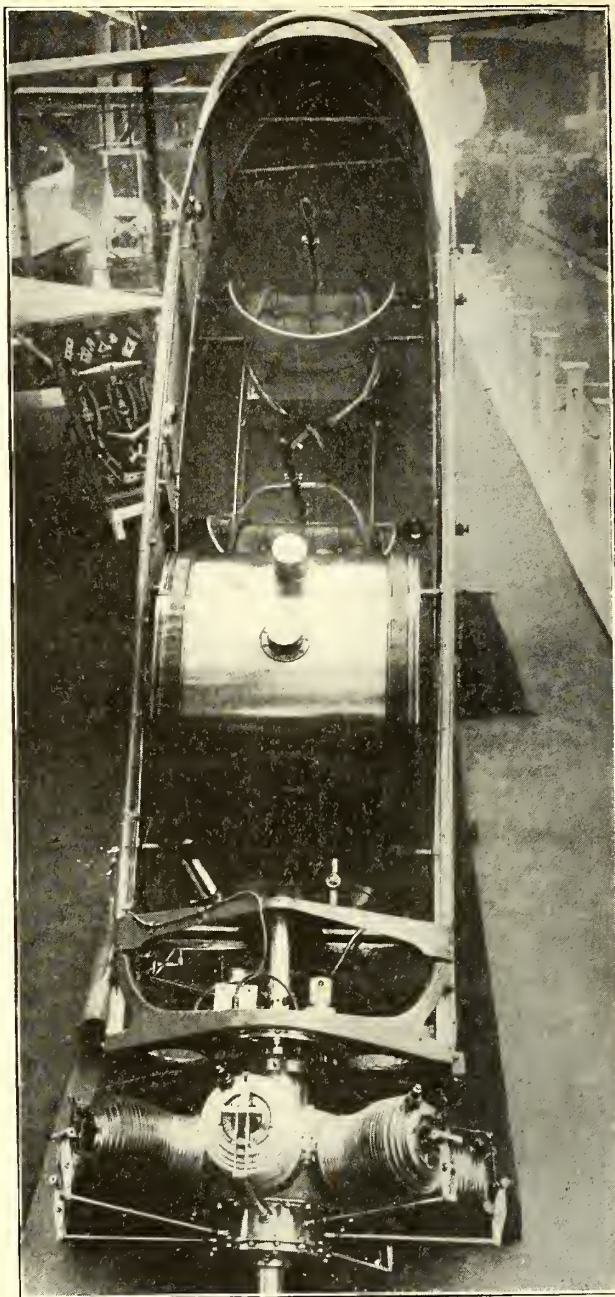
Burroughs Wellcome and Co., Ltd., show every variety of their famous "Tabloid" "first-aid" equipments. No. 706 outfit, which is specially prepared for aviators, is of exceptional interest. Although it is only the size of an average cigarette case, it contains everything for the proper treatment of almost all conceivable minor injuries, and the price is only 7s. 6d. The aviator or motorist who travels without a Tabloid outfit adds quite needlessly to the risks of rapid transit.

Cellon, Ltd., show examples of fabric doped with "Cellon," and have a small gallery of photographs of historic machines which have been "doped" with this water, petrol and oil-resisting preparation. Among the machines so treated were the totally enclosed Avro, the Sopwith Seaplane Circuit machine, the famous Short S38, the Bristol "Scout" biplane, the very successful Flanders biplane and the B.E. biplane on which Captain Longcroft made his record long-distance flight. The firm has recently produced a dope which in its liquid form is fire-extinguishing. The latest Government order received by the firm is the largest ever placed in this country.

R. W. Coan, whose ability to materialise what appear to be conjuring tricks in aluminium is well known, has a very interesting exhibit of aluminium castings of all shapes and sizes including some in "Coanalium," a new non-corrosive aluminium alloy, which it is believed will overcome the difficulties attendant on the use of aluminium in contact with salt water and which therefore may be of great use in connection with seaplane work. There are also examples of repairs to very badly damaged engine crank cases and similar complicated castings. The new parts are actually cast in and not welded or soldered.

Mr. Coan refuses to take in repair work of this description which he is not fully confident of carrying out successfully and makes no charge for a repair which fails. One gathers that repairs which do not have to be paid for are extremely rare.

DelaCombe and Maréchal show on their stand the "Avioto" carburettor, Lelarge patent, specially designed for Gnome or other rotary engines. It is claimed for this carburettor that if properly adjusted the Gnome engine may be throttled down to



Plan view of the Henri Farman Nacelle, or Body, showing the Mounting of the 80-h.p. Gnome, and the rudder-bars and levers of the dual control.

300 r.p.m. and opened up to its full speed instantaneously with no signs of choking. A decrease in petrol consumption of 35 per cent. as compared with the ordinary Gnome carburettor has been shown by official tests made at Chalais-Meudon.

The air intake of the carburettor is protected by spirals of sheet aluminium, which act in a similar manner to the wire gauze shield on a miner's "safety lamp," and it is said that such a carburettor has been run with a blow-lamp flame across the air intake without catching fire. The carburettor is fitted with a float chamber, a properly designed choke tube, and the jet is followed by a cone of aluminium over which the petrol is spread in a thin layer, giving excellent conditions for complete vaporisation. The carburettor is adjusted to suit the particular engine by closing the throttle and adjusting the

**THE
AIRCRAFT COMPANY
LIMITED.**

STAND No. 41

Hold the sole rights direct from the
Farman Brothers for the building of

HENRY & MAURICE FARMAN
Aeroplanes and Hydro-Aeroplanes

In GREAT BRITAIN and the OVERSEA DOMINIONS

Works and Flying Grounds :
HENDON.

Offices : 47, Victoria Street,
WESTMINSTER, S.W.

needle valve until the motor runs steadily at 300 r.p.m. This adjustment having been made, it is found that on opening the throttle the motor accelerates, without faltering, to its full speed and an appreciable increase in power is obtained.

Messrs. DelaCombe and Maréchal also show specimens of the C.A.D. remote control gear, which may be described as being like unto the Bowden wire and casing in which the spiral casing is kept closed up and locked to the central wire. It is this combination fitted within a solid tube shield. The closed up spiral casing transmits the push and the wire pulls. The ease with which this arrangement works, even when taken round curves of less than an inch radius, is remarkable, as is the absence of backlash.

Very prettily designed terminal fittings, such as quadrant levers, rotating handles and press buttons, can be fitted to this motion transmitting gear, and they should be found of immense use for engine control, and, indeed, for any other purpose where adjustment of any mechanism at a distance is required.

Dover, Limited, show many examples of their patent "Exonite" Steering Wheels, and various non-conducting handles and lever grips suitable for use in both motor-car and aeroplane. Unbreakable, transparent sheets are shown, and wind screens of similar material are to be had. Another feature is the "Non-Flam" "Doverite" dope for planes, which naturally goes a step in the direction of safety. The Exonite covered stranded wires are also shown, and may help to solve the problem of making an aeroplane weatherproof.

Messrs. Dunhill's show a large variety of attachments and appurtenances to the aeroplane, including all the fearsome war-gear of the aviator, and similar costumes for his fair passenger.

Safety helmets and gloves are in great variety, and even the comforts of the feet are studied.

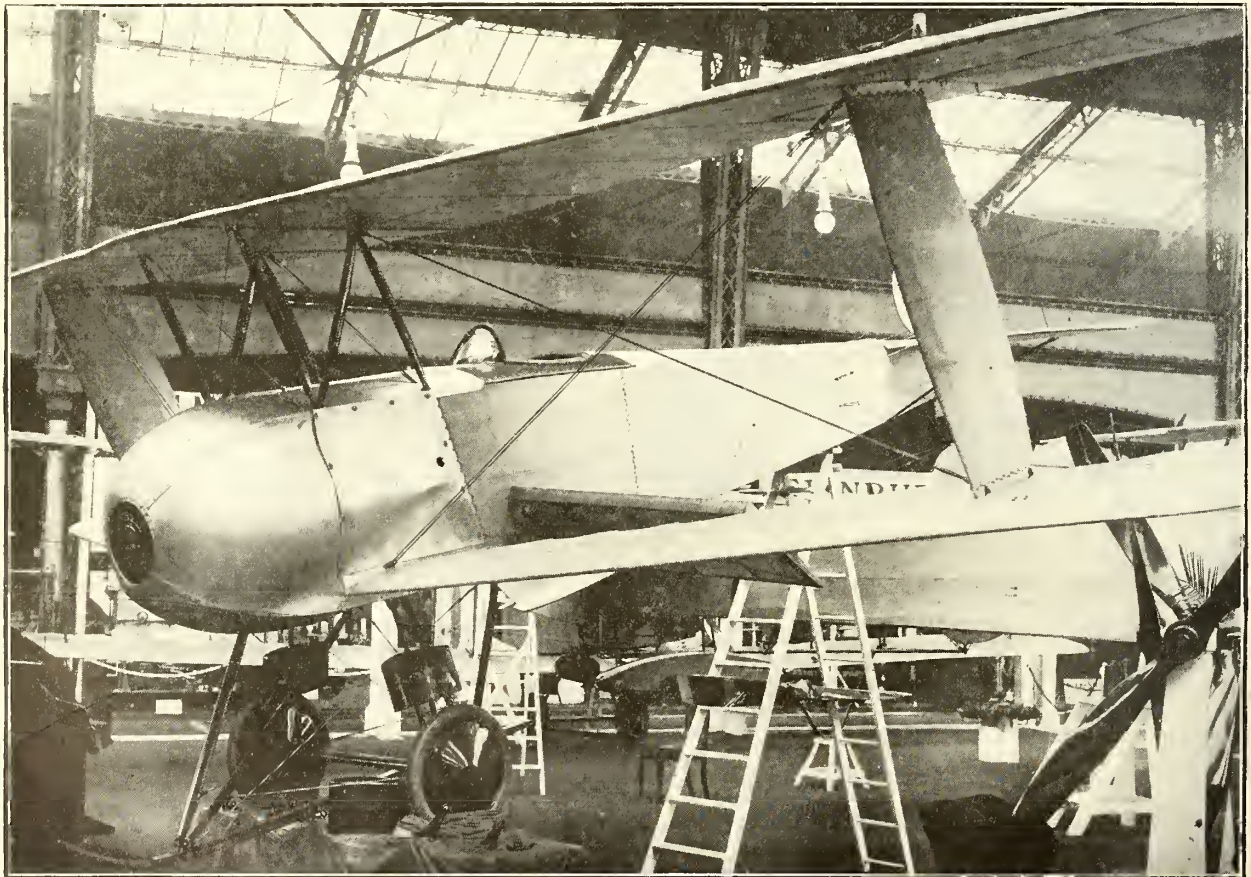
The aeroplane itself is not forgotten, and many useful attachments are exhibited. Among them is the "Gross" "Anti-Drift" compass, which is made specially for aero work. The following advantages are claimed:—(1) Absolute steadiness of the dial, oscillation being reduced to lowest point; (2) Extreme sensitiveness, showing accurately the most minute change of course; (3) Fitted with "anti-drift" arrangement which checks slightest deviation from the straight course; (4) Fitted with revolving sighting arrangement which is invaluable for adjusting compass; (5) The compass can be set to the course to be steered with the assistance of the revolving outer ring. During the flight the aviator has only to see that the two boldly-marked north points (on the dial and on the outer ring) coincide, to know that he is keeping his course. The north points are luminous, being clearly visible at night. The compass, which is absolutely air-tight, eliminating the possibility of air bubbles, is used by various Governments, and the Austrian War Office has quite recently fitted a number of aeroplanes with the Alexander Gross "Anti-Drift" Aero Compass.

A cheaper and simpler compass is the "Premier," which is of the liquid variety, and is very useful for general purposes.

The height climber will be interested in several very carefully constructed recording barographs, some of them being pocket instruments.

Very compact tool kits are shown, ranging from a pocket wallet containing half a dozen tools to the most elaborately equipped kit that could be desired.

Thomas Firth and Sons, the famous steel makers of Sheffield, have of late devoted particular attention to the manufacture of special steels for aircraft purposes. In their show-cas-



The Avro "Scout," minus its propeller, showing the stream line curtains round the interplane struts, and one of the air-brakes next the fuselage.

THE
**GNOME ENGINE
COMPANY.**

(SOCIETE DES MOTEURS GNÔME.)

STAND NO. 31.

To whom all applications for Gnôme
engines and spare parts should be made
for
Great Britain and the Oversea Dominions.

THE GNÔME ENGINE COMPANY,
47, VICTORIA STREET, WESTMINSTER, S.W.

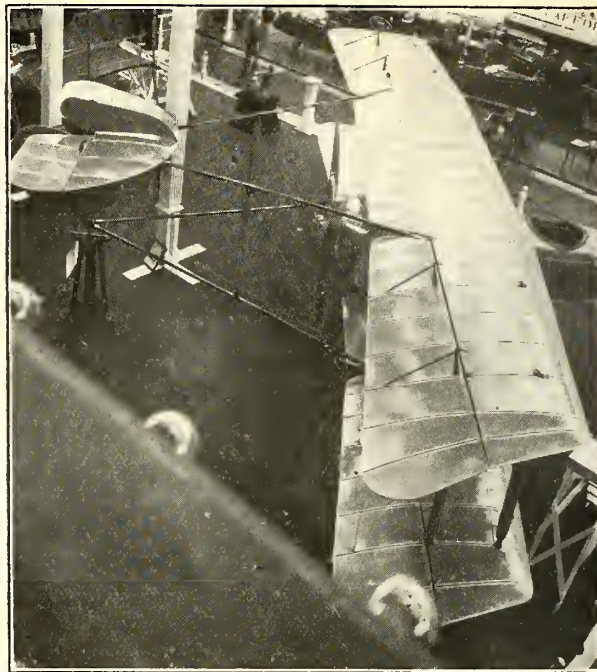
KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

on the Sopwith Aviation Co.'s stand will be found samples of several of these special steels which have been subjected to the most brutal treatment conceivable, and the specimens so treated are better evidence of the qualities of these metals than anything that one can say here.

Amongst the special varieties there is one of more than ordinary interest, namely, their new non-rusting steel, known as F.A.S. (Firth's Aircraft Steel). This is of the air-hardened, high tensile class, and by suitable heat treatment tensile strengths ranging from 40 to 100 tons per square inch may be obtained. This steel has many applications in all classes of engineering and domestic work. When it has proved its claims and has become generally known, it should mean business in millions, rather than in thousands of pounds' worth. Its first appearance to the public has been at the Aero Show as an aircraft steel, showing that Messrs. Firth and Sons are alive to the importance of our new industry.

Special steels for case hardening are shown, as well as samples of chrome nickel, nickel, and special mild steel, both in test pieces and in manufactured parts of aircraft. Specimens of sheet steel work are shown, and the bent, but not broken, specimens of the same material should be of special interest to aeroplane constructors in view of the very large part which sheet steel already plays in the construction of aeroplanes and of the possibility that in the near future it may become the chief structural material for this purpose.

The General Aviation Contractors, as their intention was stated before the Show, did not exhibit any of their goods. Instead, they installed a pleasant office where the directors received their friends and bestowed on them, in addition to other hospitality, about the most comprehensive and certainly the best produced catalogue of aeronautical accessories which has yet appeared. The contents of this catalogue show why it was impossible for the firm to exhibit the goods they sell, and also gives a good idea of the variegated nature of their business. For instance, one starts with a description of the firm's business here and in Milan. Then one comes to a dissertation on the allied firm, the "Savoia" who make Italian Farman aeroplanes. Next comes varied information about "Rapid" propellers, as used by Prévost, Védrières, and others. Thence one arrives at Spencer Moulton aeroplane tyres, G.A.C. wheels, Gnomol oil, "S.C." aero glue, Roold safety helmets, Roold safety jackets and vests for waterplane pilots, guaranteed to float the heaviest man indefinitely, Roold caps in wool and fur, gauntlets, jerseys, sweaters, mufflers, stockings, goggles, and quick-release belts, complete flying suits in fur, leather, and—of all things—paper, which is quite wind-proof and very cheap. Afterwards come Roold's map-cases, telephones to be used be-

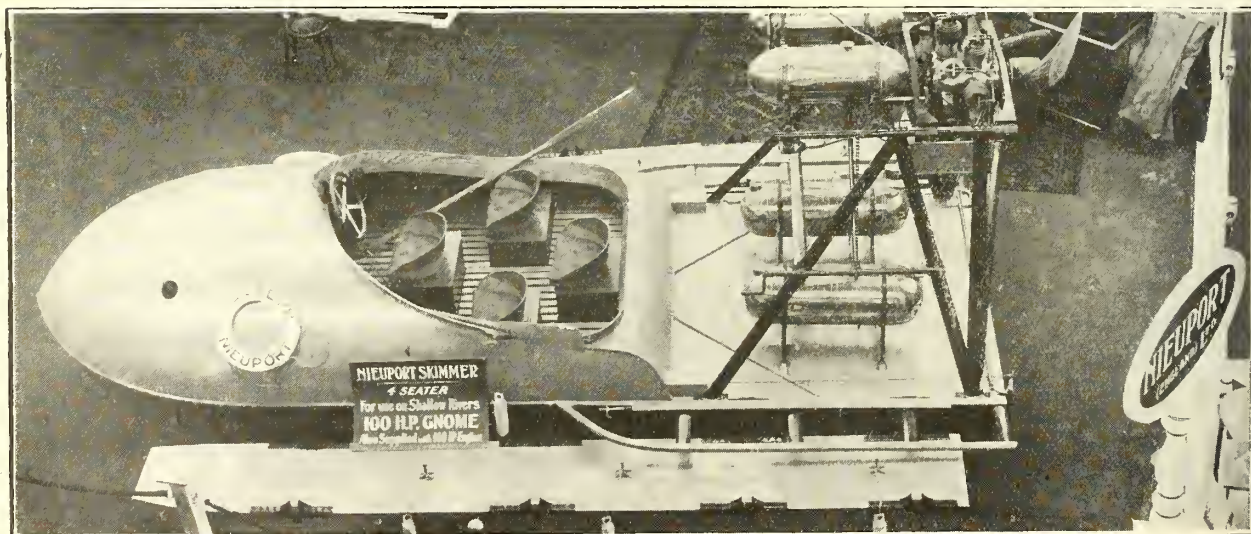


Plan view of the Grahame-White biplane, showing sweep of wings, and tail fin.

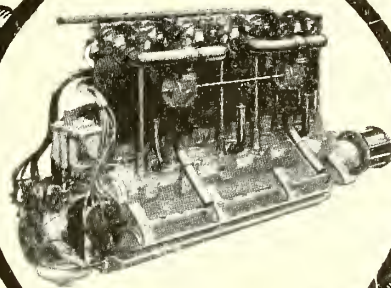
tween pilot and passenger, safety shock absorbing splinter-proof seats for aeroplanes. Then one finds Hue's aeronautical instruments, barometers, altimeters and barographs, including a small altimeter to be worn as a wrist watch; also compasses.

After all this one comes to the British Anzani Engine Co.'s list, incorporated with the G.A.C. This describes Anzanis in detail, from the 200-h.p. 20-cylinder model to the 25-h.p. 3-cylinder, all the way through the 125, 100, 80-90, 70-80, 60-65, 50-55, 40-45, and 30 h.p. models. These alone take some study, for the drawings, diagrams and photographs of the various types are most informative. The list of spare parts in detail, with prices, shows the enormous amount of work put into the production of the catalogue by Mr. Baily and Mr. Ridley-Prentice.

Last but not least comes a section devoted to Emaillite, the famous plane dope, which seems to have been used by every



The Nieuport Skimmer, 100-h.p. Gnome, with air propeller, for use on shallow water.



A GOVERNMENT ORDER

for 24 Beardmore Austro-Daimler Engines (120 h.p.) has recently been received. Practically every European Government now has these famous engines in actual use. It should be remembered that over £20,000 in prizes has been won with this design, which is now fitted to 22 different makes of aeroplanes.

BEARDMORE AUSTRO-DAIMLER AERO ENGINE, Ltd.
36, Victoria Street, London, S.W.

SELLING REPRESENTATIVES:
AUSTRIAN DAIMLER MOTOR CO., LTD.
112, Great Portland Street, London, W.

**THE BEARDMORE
AUSTRO-DAIMLER
AERO ENGINE**

maker and every aviator (not for personal application, despite Lord Lonsdale) in the world.

Taking it all round one cannot imagine a successful aeroplane business, whether it be concerned with school work or with the construction of aeroplanes, which does not buy something at some time from the G.A. Co.

Hamble River, Luke and Co. show on their stand two forms of S.A.F. air-speed indicators. One consists of an air-pressure indicator in which the air pressure operating the instrument is obtained from a Venturi Tube, which consists of a cone somewhat reminiscent of a trumpet. The arrangement has considerable advantages over an ordinary Pitot tube, in that a greater variation in air pressure is obtained for a given variation in air speed. The actual indicator consists of a needle rotating round a dial inscribed with the corresponding speeds, which is marked with danger points corresponding with the actual safe air-speed limits of the machine to which it is to be fitted.

The other form consists essentially of a multiblade propeller working against a spring and operating a pointer which works over a divided scale. The whole instrument is mounted on a frame intended to be attached to a wing spar or to the side of the body, and is fitted with a vane which keeps it facing the actual direction of movement of the machine through the air. The divisions on the scale are very open and plainly marked and are easily readable at five or six feet distance, and, like the other S.A.F. air-speed indicator, the safe-speed limits of the machine are marked thereon.

Another interesting instrument of the same stand is the S.A.F. petrol or oil level indicator. A sensitive pressure gauge is employed to measure the pressure required to force a bubble of air down a pipe to the bottom of the petrol or oil tank, and as this pressure depends only on the height of the liquid surface above the bottom of the pipe and on the density of the liquid, the gauge can be easily calibrated to read the actual amount of fluid in the tank. The air bubble is forced through the tube by squeezing a small rubber bulb, and each time this bulb is squeezed the indicator gives a reading.

The Hasler Company show, on the Sopwith Aviation Company's stand, examples of the "Tel" speed indicators and recorders of various types. These instruments differ from every other type of speed indicator yet made in that they actually measure the distance moved by a part of the mechanism in a given interval of time, usually one second, the distance so moved governing the position of the needle on the dial, which thus gives the mean speed during the second previous to each resetting of the needle.

The needle mechanism employed is too intricate to describe here, but is extremely well made and does not in practice get out

of order. The drive of the needle is positive and its reading cannot be affected by any variations of friction. The working part of the time measuring mechanism employed is a standard form of clock escapement made by competent clock-makers.

These instruments are made either as indicators of speeds in miles per hour, or revolutions per minute, or any other units desired; as combined indicators and recorders, and as indicators, recorders and total distance recorders. They are made for fitting to engines, as motor-car speed indicators, and their latest application is to aircraft as air speed indicators and recorders. For this purpose the standard "Tel" instruments are driven by a suitable propeller exposed on the machine and are calibrated experimentally, and the fact that the instruments can be obtained to give a continuous record of air speed on the machine and also to sum up the total air mileage of the machine will render them of considerably greater value than some types of air speed indicator which give only the instantaneous value of this quantity.

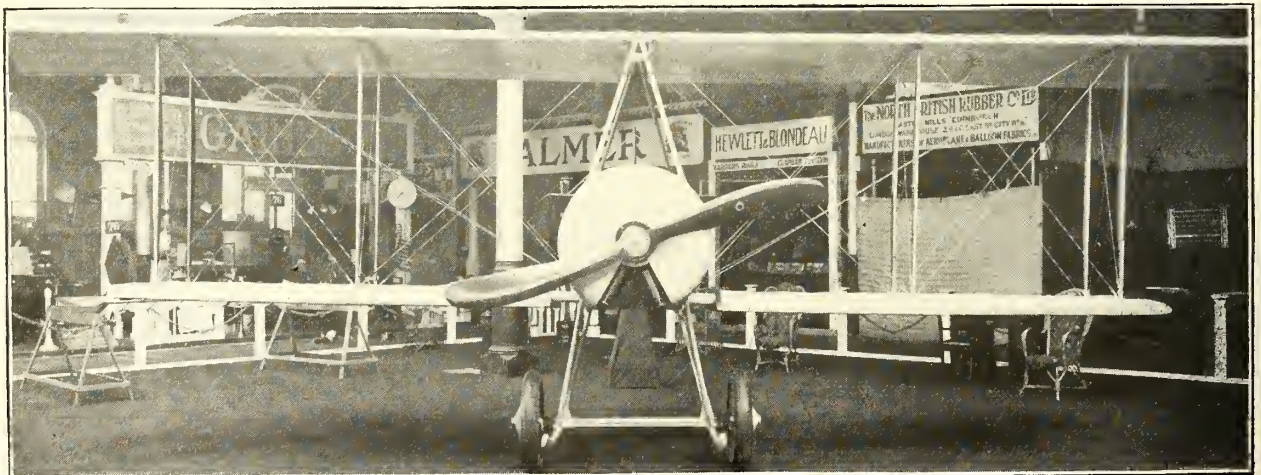
Hewlett and Blondeau show a complete range of wire strainers, and of bolts, bolts and nuts, wire, stranded wire cable, fabric and S.P.L.A. dope for aeroplanes, and similar general accessories, in addition to samples of welded sockets, control levers, and engine housings of their own manufacture, and specimens of the special steels which they employ in the manufacture of these various accessories. The Hewlett and Blondeau firm's name is known throughout the aviation industry in this country and the examples of their work here shown will not fail to maintain the high reputation which they have already achieved.

Amongst Messrs. Hewlett and Blondeau's specialities is the art of persuading thin gauge steel tube to assume any kind of shape that may be desired and they have frequently made good jobs of tasks in this class of work which the majority of those acquainted with the habits of steel tube would have declared to be impossible.

One accessory of special interest is the new Binet quick-attachment wire strainer which enables bracing wires to be detached instantaneously, and yet will not detach itself even if the locking gear comes adrift.

Hewlett and Blondeau manufacture for outside order or to outside design, any possible form of metal work for aircraft, and are always willing to give good advice to possible customers as to the best method of carrying out work of this description. M. Blondeau's experience of aeroplanes, as a flier and as a maker, is so long that one may always place reliance on his opinions.

Messrs. Henry Hughes show Mr. E. Holcombe Clift's various instruments, including his well-known compass of both



Front view of the Eastbourne Aviation Company's biplane (80-h.p. Gnome), one of the most business-like machines in the Show.

ANZANI AERO ENGINES

AS USED BY H.M. ADMIRALTY, WAR OFFICE AND AUSTRALIAN GOVERNMENT, Etc.

NEW CATALOGUE OF 1914 MODELS NOW READY

Apply

STAND 48 OLYMPIA.

CONTRACTORS TO
H.M. ADMIRALTY & WAR OFFICE,
AUSTRALIAN, ITALIAN AND GREEK GOVERNMENTS.

PASSENGER FLIGHTS

"RAPID" Propellers
"GNOMOL" Castor Oil
"G.A.C." Aero Tyres

"G.A.C."
AERO SUPPLIES of
Every Description

EXHIBITION FLIGHTS

"REGY" Propellers
"ROOLD" Helmets, &c.
"G. A. C." Aero Wheels

"G.A.C."
AERO SUPPLIES of
Every Description

48 THE GENERAL AVIATION CONTRACTORS LTD. 48

OLYMPIA

Ask for
New 1914 Catalogue.

SPECIALISTS &

OLYMPIA

Ask for
New 1914 Catalogue.

CONSULTANTS

30, REGENT STREET, PICCADILLY CIRCUS, S.W.

OLYMPIA:—March 16th to 25th, 1914.

And at MILAN, 9, VIA MONTE DI PIETA.

EMAILLITE

THE WORLD-WIDE PREMIER DOPE.

As Extensively used by

H.M. ADMIRALTY, WAR OFFICE & AUSTRALIAN GOVERNMENT

And the Governments and Constructors of, FRANCE, GERMANY, RUSSIA, AUSTRIA, ITALY, SPAIN, Etc.

Enquire for 1914 Catalogue at

STAND 48 OLYMPIA.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

plain and "anti-drift" types, map cases, air speedometers, petrol and oil gauges, and an excellent signalling device.

The air-speed indicator is a pressure gauge of extreme sensitiveness, operated by a Pitot tube, but is not a liquid column pressure indicator, and is free from the reproach of being gravity controlled. The instrument is compensated for temperature, and provided that the Pitot tube is properly mounted, gives readings which nowhere differ from the truth by more than 1 m.p.h.

The petrol and oil gauges are also pressure gauges, whose reading is controlled by the head of liquid in the tank. The instruments give steady, accurate readings under all conditions, even of violent vibration.

The signalling device between observer and pilot is one of those delightfully simple ideas that make one wonder why they have not been thought of before. Eight little electric lamps are mounted behind a glass screen, and in front of each lamp is an appropriate inscription. A separate switch for each lamp is fitted and the observer has merely to select the switch corresponding to the required instruction to the pilot. Also one of the lamps is fitted with a Morse key, and dot and dash signals can thus be sent, and a similar lamp and key are fitted the other way round (from pilot to passenger) so that the two occupants may communicate at length with each other. Clift instruments, or instrument boards, are fitted to the Bristol, Avro, Blackburn, Grahame-White, Eastbourne Aviation Co., and Maurice Farman machines at the Show.

The Integral Propeller Co., Ltd., are showing Chauvière Integral propellers for all purposes, metal-tipped propellers for seaplanes, and a very imposing looking weapon entirely sheathed in brass. A novelty of high value is the quick detachment boss, wherein the interior of the boss is screwed with a finer thread than that on the nose of the engine, and a special nut, screwed both within and without, engages with both the aforesaid threads, and not only thrusts the boss up onto the conical engine shaft when screwed off, but drags it off when unscrewed. This arrangement is now fitted as a standard on Gnome and Renault engine bosses, and may be obtained to fit any engine.

Another feature which, though at present only used for airships, may, none the less, have much value for aeroplane work, is the adjustable pitch propeller. Each blade is mounted on a steel sleeve and the sleeves are rotatable, through a gear analogous to the differential of a motor-car, while the propeller is in motion, a range of pitch from 2 m. 50 astern to 3 m. 50 ahead being provided. The work and finish on all these exhibits is well up to the Chauvière standard.

Lang Propeller, Ltd., show many examples of up-to-date propeller work, which, needless to say, are most beautifully finished. Two B.E.2 propellers, part of a large Government contract, are to be seen, one in its finished state, and the other half-finished, to show the manner of building up these four-bladed airscrews.

The other propellers exhibited are of the Lang design, and each particular one is carefully constructed to suit its particular purpose. Propellers with fabric-covered tips are recommended for use on land machines when any rough handling is probable, as they are less liable to be chipped.

The Lang copper-tipped propellers for seaplanes are of special interest, for the system of firmly attaching the metal "mits" is most ingenious. The method employed is to let a strip of copper into the propeller blade on both sides, in a diagonal direction, to form an anchor, and the tip is then treated electrolytically in a copper bath. A homogeneous mass is thus formed of the strip and the deposit, so that the sheath cannot be torn off the blade by centrifugal force. This method eliminates the use of rivets, and makes a perfectly watertight job. Patents are being applied for all over the world for this ingenious process. Another propeller is entirely covered with copper by this process, but it is largely of an experimental nature. A row of well made models illustrates the Lang process of manufacture.

On the same stand samples of aero cloths made by a firm in Watling Street are shown. One cloth, Mark R.F.G., is now being tested by the Government with a view to large purchases.

William Mallinson and Sons, of Hackney Road, show examples of various timbers suitable for aeroplane and boat construction. Of very special interest is a plank averaging 18 inches wide cut from a 20-foot log of shell-bark hickory, which is straight in the grain and free from knots or shakes throughout. Messrs. Mallinson state that they have large quantities of this timber in stock, and in view of the growing scarcity of good English ash suitable for aeroplane spars, this timber is likely to attract considerable attention. Messrs. Mallinson also show thin cedar and mahogany suitable for planking floats, some very fine specimens of silver spruce and mahogany, walnut and other woods useful in the construction of aeroplanes.

Richard Melhuish and Sons' ambition seems to be to stock every possible variety of tool for every possible purpose, and an excellent show of tools for both metal and wood work are shown on their stand. Among those of more than usual interest are their hand-driven bench circular saw for cutting off steel or other metal rod and tube, wire-cutters suitable for cutting hard wire, bench shears, etc. In view of the increased accuracy which is now demanded from builders of aeroplanes, the Browne and Sharpe micrometer with the direct reading cyclometer dial is worthy of attention. Messrs. Melhuish's catalogue is a regular compendium of tools of all kinds. It should be in the hands of every man who works in metal or wood, for one cannot imagine any job for which a suitable tool cannot be found therein. The book costs a shilling, for it is far too big a thing to give away, and the money will be well spent by anyone who buys it.

The Motor Radiator Co. show radiators for all sorts and sizes of aeroplane motors. The majority are of the Zimmerman type of honeycomb radiator, and the special feature of this type is the small over-all size and the low cooling surface required for any given duty. This high efficiency is traceable to the splitting up of the circulating water into very fine layers between the tube, whereby every particle comes continually into intimate contact with a cool tube wall.

The ballast gainer for airships, referred to last week, is a prominent feature. It consists simply in passing the exhaust from the engine through a condenser, and one is informed that Count Zeppelin finds that the water condensed actually slightly exceeds in weight the fuel consumed, completely avoiding the otherwise inevitable loss of gas. This gain is accounted for by the combination of oxygen from the air taken in through the carburettor intake, with hydrogen from the petrol.

Samples of flat tube radiators are also shown. Excellent workmanship, light weight, small head resistance are the characteristics of the radiators, and ability to make up radiators to any desired outline account for the large business the firm is doing. These points sufficiently indicate their suitability for aircraft work.

Nicole Nielson and Co., Ltd., show their well-known Watford revolution speed indicators for aeroplane motors. These indicators are of the centrifugal type fitted with flexible shaft drives, and can be made of aluminium throughout, and the whole instrument is exceedingly light. Great steadiness of the needle and freedom from vibration are claimed for this instrument, and it is very well made.

The North British Rubber Co., Ltd., exhibit Clincher aeroplane tyres, North British balloon fabric and samples of aeroplane fabric treated with a new cellulose proofing material, and also a new unproofed fabric of the highest grade suitable for treatment with any of the modern dopes. Their various types of fabric are too numerous to treat in detail in this report, and will be dealt with in more extended form at an early date.

Joseph Owen and Sons have on show samples of ash, spruce, mahogany and other of the woods employed for aeroplane construction. The greater number of these samples are large planks 20 ft. in length and show Messrs. Owens' ability to supply these timbers in long lengths with a straight grain and free from knots and other defects. Samples of thin cedar and

STAND N^o. 73

AEROPLANES of any description built from customers' designs.

OXY-ACETYLENE WELDING

in all its applications our Speciality.

ENGINE PLATES AND HOUSINGS

made for any engines.

FUSELAGES, RUDDERS, SEATS

made in steel tube.

TANKS with Taps & Fittings

INCLINO-METERS,

REV. COUNTERS,

DOPE, CANVAS,

PURE CASTOR OIL IMPORTED.

WIRE and CABLE. ∴

Strainers, **BOLTS**, Eye-bolts and Plates, of the highest tensile strain. Wire Ferrules, Cable Fasteners, Thimbles and all other big and small

ACCESSORIES

OMNIA WORKS, Vardens Rd., Clapham Junction

Telegrams—"Aeromnia."

Telephone—Battersea 1987.

S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

mahogany suitable for planking the hulls of flying-boats are also on view.

Palmer Tyre, Ltd., show the Palmer Aero Cord Tyre, which was described some little time ago in these columns, certain of them being exhibited under the combined vertical and horizontal load then illustrated, and very cheerfully do they bear their burden. The firm also show in action the bewitching and bewildering machine which makes "Palmer Cord" fabric, which one cannot attempt to describe, but which everyone who takes any interest in ingenious mechanisms should take the first opportunity of examining.

Leo Ripault and Co. show Oleo plugs of all sorts, shapes, and sizes, for rotary engines, stationary engines, air-cooled engines and water-cooled engines, for high-speed engines and slow-speed engines. All are "Oleo," and the "nigger" mark is well enough known to render it unnecessary to dilate on their merits. Special plug terminal caps of simple but effective design, plug spanners and various other accessories connected with this end of the ignition gear are also shown.

Rubery, Owen and Co., show examples of steelwork for aircraft, amongst which special attention may be drawn to a pair of housings suitable for carrying a Gnome engine in a square fuselage. These are entirely constructed of steel tubes welded together, and are provided with long square boxes at each corner, through which the fuselage longerons are slipped. The whole is extraordinarily light and should be very strong.

A very beautifully finished all-steel rudder frame and a pair of light pressed-steel ribs, suitable for elevators or tail planes, are exhibited.

Fox's patent wire benders, quick release gears, enabling the pilot to start up single-handed, wire strainers, eyebolts, and similar fittings of high tensile steel in all sorts of sizes and shapes are exhibited. Messrs. Rubery, Owen and Co. are probably the largest and most experienced concern which specialises in pressed steel work, and what they cannot produce in this line is probably not to be made.

The Skefco Ball-Bearing Co., Ltd., show S.K.F. ball bearings, which are fairly universally known and a detailed description is not required here. Their special feature is the use of a double row of balls running in an outer race, which is an equatorial section of spherical surface, so that the whole inner race and the balls in their cage can swing in the outer cage, enabling the actual bearing to be set considerably out of square with the line of the shaft without stressing the bearing or causing undue friction.

An interesting model on the stand exhibits this useful quality in a very graphic manner. Ball thrusts and various combinations of journal and thrust bearings are also shown, all of them exhibiting that accuracy of work and excellence of finish which are so essential a feature of a satisfactory ball bearing.

C. G. Spencer and Sons, the well-known balloon experts, have a stand which is of more interest to the younger generation than most. On it are exhibited miniature balloons filled with hydrogen gas, and fitted with nets and baskets. Several grotesque animal balloons are also shown. Aviators' children who are believers in aerostation, are well catered for.

The Spiral Tube Company show examples of their spiral radiators, and also copper tubular radiators of the type used on the Antoinette. Several petrol tanks are also shown.

The Stern Sonneborn Oil Co., Ltd., show a great variety of motor lubricants, some of them specially suitable for aeroplane engines. An oil intended for use on Gnomes is stocked, but those who still consider castor oil the best lubricant for the delicate taste of this engine can obtain it of the very finest quality from the makers of Sternal. A useful innovation is "Ambroleum," which is intended chiefly for use in gear-boxes. It is specially prepared with viscous properties so that instead of merely washing about the bottom of the gear-box, it clings to the teeth and follows them round their whole course.

Mr. A. Tiano is showing on the Aircraft Company's stand and on a small stand of his own the "Rouzet" A. R. 13 Wireless transmitting set. This sending station consists of a generator driven by the motor of the aeroplane, a transformer which raises the current generated to a high tension and a synchronised rotating spark-gap so designed that little or no energy is wasted by arcing, and thus an abnormally large percentage of the total energy is employed in producing the required oscillations. The necessary condensers and tuning coils are all provided in a very compact form. There is a divided "aerial" consisting of a trailing wire for the one part and an insulated net-work round the machine for the other. As these two parts of the aerial are completely insulated one from another and each from the framework of the machine, it is still possible to operate when the machine is on the land or the water and when the trailing wire is "earthed." The total weight of this outfit is 72 lbs., and it has a range of 110 miles.

A larger set weighing 132 lbs. and of considerably greater range is also made; this set is not specially designed for aeroplane work, but it can be and has been successfully fitted to aircraft.

Vickers Ltd., show on their stands in addition to the two biplanes already described, some fine examples of Vickers-Levasseur propellers both for land machines and waterplanes. These propellers, with their characteristic scimitar-shaped blades, which, by the way, travel in the opposite direction to the executioner's sword, are too well known to need description here. A four-bladed propeller of the type designed by the R.A.F. for Mark B.E.8 machines is also shown.

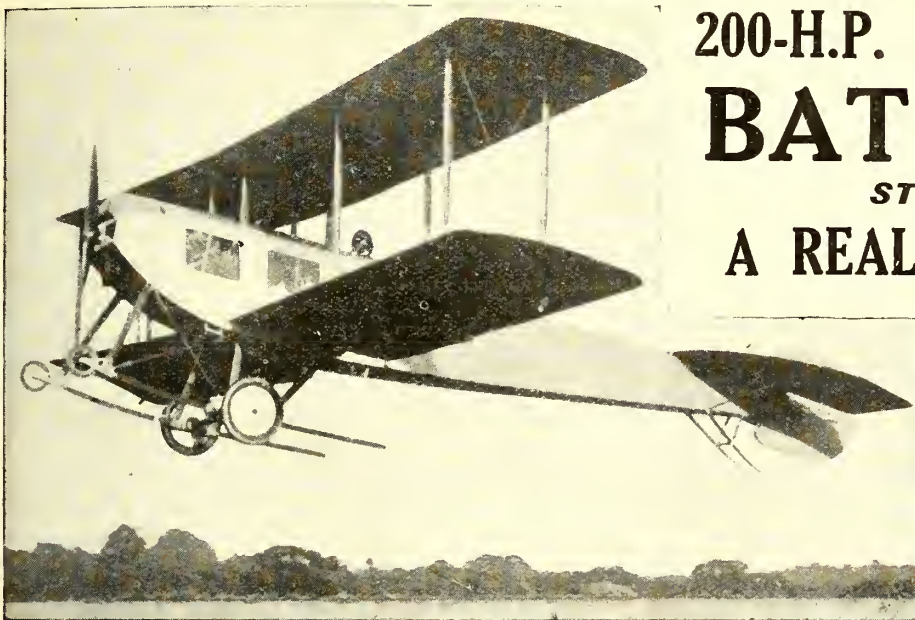
Another useful exhibit is a compressed-air self-starter, for Gnomes, which consists of a little four-cylinder two-cycle compressed-air engine, designed for the starting gear of a Gnome motor. This is fed from a sparklet device, and is connected up to the ordinary starting gear fitted on the distributor of the engine, automatically engaging itself when the air is turned on and disengaging itself as soon as the engine commences to run. The weight of the apparatus is only 17 lbs., yet it has successfully started up a 160-h.p. Gnome twenty times in succession. A lighter and more efficient starter on similar lines is to be produced very shortly.

Vickers Ltd. also have a stand devoted entirely to various applications of their well-known alloy Duralumin, having a specific gravity slightly less than that of aluminium and a tensile strength approaching that of mild steel. Its utility for aircraft purposes is obvious, and a glance at the stand suffices to show how innumerable are the possibilities of this material.

Messrs. C. C. Wakefield and Co., have an exceptionally interesting stand, on which they show their well-known "Castrol" motor lubricants. A terrestrial globe is exhibited on which a slow and steady stream of Castrol falls from one of the standard tins, which is connected up to an ingenious circulating arrangement. The weight of the oil which falls on the globe at a tangent to its axis is sufficient to make the sphere revolve, and so distributes the oil over the surface with the exception of the actual poles, typifying the world-wide distribution of Castrol. It was pointed out, nevertheless, that Castrol had been used very near the Pole by Dr. Mawson, who had found that it did not congeal with a cold of 20 to 30 degrees below zero, and he used it with the greatest success in connection with his wireless apparatus. Another striking exhibit is a large frame in the centre of which is a seven-cylindrical Gnome, round which are placed portraits and unsolicited testimonials from seven men of moment in aviation. The title of "Seven reasons for using 'Castrol'" is well justified.

The Vacuum Oil Company, Ltd., have a stand on which is exhibited samples of "Gargoyle," "Mobiloil," and greases. Lubricants are manufactured which are suited to every make of aero engine with the exception of the Gnome. The heavy gear grease is put up in very ingenious cartridges with an adjustable nozzle so that the lubricant can be directed straight into the receptacle without the old-fashioned intermediary of a wooden spoon or other dipper.

OLYMPIA — DO NOT MISS THE 200-H.P. SOPWITH BAT BOAT



STAND 44.

**A REAL SEA - GOING
AIRCRAFT.**

EFFICIENCY

is the
Characteristic
of

**Sopwith
Aeroplanes.**

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works: **KINGSTON-ON-THAMES.**

Telegrams:
"SOPWITH, KINGSTON."

**1914 Two-Seater Seaplane,
504 Type.**

A splendid all - service
machine. Quoted as one
of the finest, if not the
finest, in the world.

After the Show—

The Verdict of the Critics,

"NOTHING BETTER"

**1914 Single - Seater,
511 Type.**

The very latest word
in aeroplane construction
— smart — serviceable —
compact.

**NOTHING
BETTER**

AVRO

**NOTHING
BETTER**

**Contractors
to the
Admiralty & War Office.**

**1914 Two-Seater Gun-carrying
Seaplane, 508 Type.**

Novel features—advanced
ideas. Quick climbing.
Speedy.

**Contractors
to
Foreign Governments.**

A. V. ROE & Co., Ltd.

Clifton Street, Miles Platting, MANCHESTER.

Telegrams: "TRIPLANE, MANCHESTER."

Telephone: 337 FAILSWORTH.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The London Aerodrome Dinner.

On the Friday night of last week the London Aerodrome Dinner, given by the Grahame-White Aviation Co., Ltd., took place at the Royal Automobile Club. There were about 250 people present, the number including practically every male person of note who has ever flown at or been to Hendon. The dinner itself was of the usual R.A.C. excellence. The Earl of Lonsdale in the chair did his task in his usual sporting manner.

The first toast of the evening, that of British Aviation, was given by the Hon. Arthur Stanley, who said that although three or four years ago he would have had to apologise for our backwardness, he now thought we are leading in some respects, for although the Government did not help aviation, we had at least two advantages from the fact; firstly, we had the Englishman's pleasure of a grievance, and, secondly, we had the incentive to do things for ourselves. He had the most sincere admiration for those who had done them.

Mr. Holt Thomas, in replying, said that the founder of the London Aerodrome had done much for aviation, and then, when the cheers had subsided, he remarked that he himself was the founder of the London Aerodrome, for he took the fields where the sheds now stand as the starting place for Paulhan's flight to Manchester. Mr. Grahame-White at that time was in Wormwood Scrubbs. [It will be remembered that Mr. Grahame-White started from Wormwood Scrubbs.] However, the spirit of Mr. Grahame-White had done much for British aviation. The Services also showed much progress, though it was misleading the public to say we held the supremacy of the air. He hoped, however, that British aviation and the supremacy of the air would soon be synonymous.

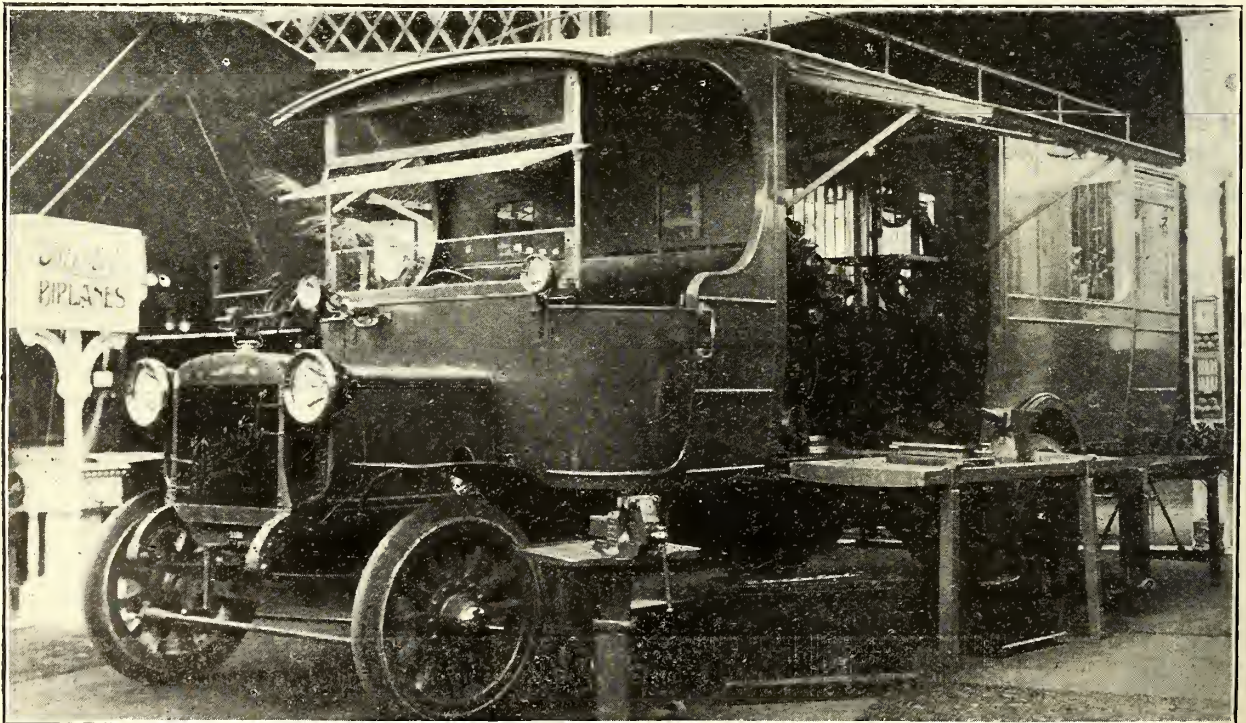
Mr. Mervyn O'Gorman said that he felt that Hendon held a large place in British aviation. Hendon had two great advantages, Mr. Grahame-White, and Mr. Richard Gates, and it was destined in time to be the quintessence of the London railway termini.

Mr. Joynson Hicks, M.P., proposing the Services, said that we looked to our forces for defence, and that the people of this country should in future see that the Air Services lacked nothing for their needs.

Major-General Sir J. S. Cowans, K.C.B., in a good sound speech, which read exactly like a War Office communiqué, said that the Royal Flying Corps was maintaining steady expansion. He was in a position to know that untiring care was taken to ensure the safety of pilots. The thanks of the Services were due to civilian pioneers.—Incidentally this seems to be about all they do get.—He also said that there must be no jealousies in these great Services.

Commander Samson, R.N., said that the Navy owed a great debt to civilians for showing that flying was a practical thing. Speaking for the Naval Wing, he was sorry to see so little water flying done by civilians, and he added he would like to see Hendon and its public shifted to the Dogger Bank. He thought that the proprietors of "Zotos" and other remedies against *mal de mer* could be depended upon for handsome subscriptions towards the expenses of moving. One may suggest to Commander Samson that if the present weather conditions hold it will be comparatively safe to fly a seaplane to either of our aviation grounds. He said he was told that one could see flying at Hendon on any day, no matter what the weather, but one could also see flying at another place (one supposes he referred to Eastchurch) on the same days.

Lord Lonsdale, in proposing the London Aerodrome, said that its prominent position was due very much to Mr. Grahame-White's energy. As to flying in general, risks would always be faced by British sportsmen. Governments of either party seemed prejudiced against civilian knowledge, and he thought there should be a bond of union between the Services and civilians. He thought he might be wanting in diplomacy in mentioning it, but he had heard it said that a number of inefficient aeroplanes had been bought from Mr. Grahame-White last year to swell the Army's stock of aeroplanes for Parliamentary purposes. What had really happened was that Mr. Grahame-White was asked whether he was willing to sell them, but he thought that if Mr. Grahame-White had been asked whether these machines were fit for Military service, he would have said, "No, Sir!" Consequently the Army bought this valuable stud and they all broke down in training. He



The Travelling Workshop for Aeroplanes shown on the Bristol Stand at Olympia, built and equipped by the Bristol Company.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,

AEROPLANE WORKS

AND

FLYING GROUNDS—

EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9, MINSTER-ON-SEA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

200 H.P.

The New Isaacson Air-cooled Rotary
Engine is to be seen on Stand 70
AT OLYMPIA.

A larger edition, in power and reliability, of the famous 70-H.P. Isaacson aircooled radial, which has given 6 months uninterrupted satisfaction on the Flanders Biplane at Brooklands.

Particulars and Prices from :

The Isaacson Radial Engine Co., Ltd.
2, East Parade, Leeds.

The Eastbourne Aviation Co., Ltd.
Agents at Olympia.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

thought the sooner the authorities went carefully into details about both submarines and aeroplanes, the better for the Services. There were plenty of fatalities in hunting and in every other sport that was worth while.

He then delivered a serious lecture to aviators on the misuse of stimulants when flying, referring both to alcoholic beverages and to drugs. He said that the recent accidents in the Liverpool Steeplechase would never have taken place if alcohol had been barred from the weighing-room. He recommended pilots always to ride *au naturel*. Here one may interpolate the remark that as one who knows most of the aviators in this country the present writer does not know of anyone at present flying who habitually uses stimulants before starting, though both among Service and civilian pilots there may be perhaps a trifle too much alcohol consumed at times when off duty. The writer is not a rabid teetotal advocate but as a large consumer of alcohol who retired from the business some years ago, he realises the improvement in one's nerve when one never consumes sufficient to feel its effects in any way at any time. The chief drawback to total abstinence is that no one has ever invented a teetotal drink that is worth drinking.

Replying to Lord Lonsdale, Mr. Grahame-White said that the London Aerodrome was just emerging from infancy, and beginning to become a sound commercial business. The directors were doing their best to remove the erroneous impression of the danger of flying. Eighty-five meetings had been held, 70 different pilots had competed in 350 events, £6,000 had been distributed in cash prizes, in addition to various trophies, and there had been over two million visitors to the aerodrome, so he thought they had demonstrated that flying was not a fair-weather sport. He said that abroad aeroplane makers were supported by the Government, and it should be so in this country. Also, it seemed a pity not to make use of civilian aviators.

Mr. Gates, proposing "British and Foreign Aviators," started his speech on the good old Donnybrook principle, "wherever you see a head, hit it." He told Lord Lonsdale quite straight that he had never seen an aviator the worse for drink, and a great many aviators were teetotalers, whereupon Lord Lonsdale retorted that he never said aviators drank. Whatever Lord Lonsdale meant, that was certainly the impression he conveyed to the writer, and to various and sundry experienced aviators in the vicinity. Turning to Mr. Holt Thomas, Mr. Gates told him that one swallow did not make a summer, and one shed did not make an aerodrome. Then wheeling on Commander Samson, he told him that perhaps the other people who flew every day as the pilots at Hendon did had not got such a publicity department. Next, switching off to aviators

in general, he said that they had all sorts of peculiar experiences, and he related an apocryphal story of how he had himself taken up the Crown Prince of the Cocoanut Islands, for which he had not been paid, and was a few days afterwards honoured with a communication from the Prince stating that he had had conferred upon him the order of the M.U.G. Referring to Mr. Hamel, he said that the passengers with whom he looped the loop on the previous day ranged all the way from princes to pigs (the passengers in question were first of all Prince Paul of Serbia, who is so far the only person of royal blood who has looped the loop, and the others were two small pigs taken up in a basket). Then, becoming serious, he said that no matter how skilful a pilot was, he could not do anything if his machine broke, and he warned constructors to be careful. He also bore witness to the good work done by instructors at the various flying schools, who work very hard and about whom one hears very little. Further, he said that civilians would be glad to help the Services in time of war, and they could be depended upon to obey orders.

Lieut. John Porte, R.N., just returned from the States, expressed his gratitude to the London Aerodrome for the good treatment he had experienced while flying at Hendon.

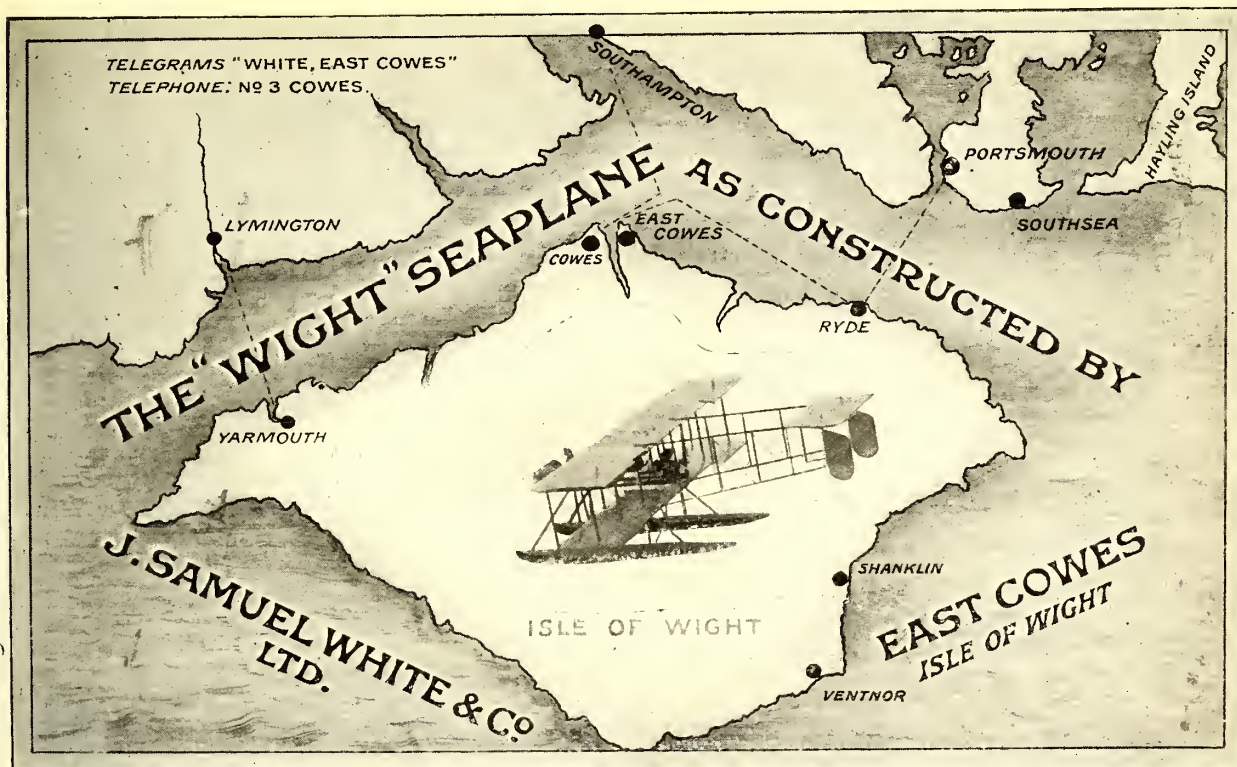
M. Louis Noel, speaking on behalf of M. Verrier, whom, he remarked, "had the cold feet of speaking," said how happy he and other foreign aviators were to show the British public the meaning of aviation.

There were 21 speeches on the toast list, and Mr. Samuel Samuel, M.P., did an extra turn, as he put it, but unfortunately exigencies of the press prevented me from hearing the remarks of Col. Holden, Mr. Hamel, Mr. Sopwith, and one or two others. Between the speeches were interspersed an excellent entertainment, provided by such artistes as Miss Ethel Levey, Miss Grace de la Rue, and Mr. Joe Elvin. The whole thing was excellently done, and it is ill-manners criticising one's hosts, but perhaps one may be permitted to suggest that at the second annual dinner of the London Aerodrome speeches should be made more in the nature of speed-handicaps round the pylons, than cross-country trips out of sight and back, and it would not be a bad idea either to cut the cackle by getting all the speeches over and done immediately after dinner, or to sandwich the speeches between the courses of the dinner; then if an entertainment followed one could sit and enjoy oneself with one's friends without a Damoclean sword in the shape of another speech, even of the very best, hanging over one's head during each turn.

However, the London Aerodrome was not organised in a day, and this was its first annual dinner, and everyone appreciated very heartily the lavish hospitality of the hosts.—C. G. G.



The Blackburn Monoplane. The only British machine of its type at Olympia.



STAND 67 OLYMPIA.

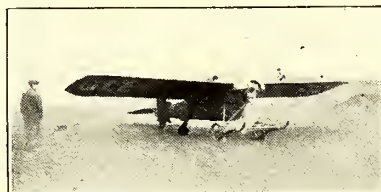
STAND 67 OLYMPIA.

CLÉMENT-BAYARD.

**AEROPLANES, SEAPLANES, and AIRSHIPS.
MOTORS FOR ALL TYPES OF AIRCRAFT.**

Specialists in all-steel construction of Aeroplanes & Seaplanes.

**Single - Seater
Armoured Scouting
Monoplane.**



**Weight 375 Kilos.
100 h.p. Gnome Motor.
Speed 125 Kil. per hour.**

As Supplied to the French Army.

**Works: QUAI MICHELET,
LEVALLOIS, PARIS.**

British Representatives :
**DELACOMBE & MARÉCHAL,
166 PICCADILLY, W.**

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Naval Estimates.

The following is an extract from the statement of the First Lord of the Admiralty on the Naval Estimates, so far as they refer to the Naval Air Service:—

During the past twelve months a considerable advance has been made in the Naval Air Service.

Seaplanes have combined for war exercises with the Patrol and Defence Flotillas, and also took part in the naval manoeuvres in July, and a flight of naval aeroplanes was employed during Army manoeuvres. Considerable success attended the operations of the aircraft in all these exercises.

A cruiser was specially commissioned and fitted out to carry seaplanes during the summer of last year, and a large number of flights were made from her. In consequence of the experience gained in this ship it has been decided to procure a special vessel as seaplane-carrying ship.

Progress has been made in the establishment of a chain of seaplane bases round the coast; five such stations have already been completed, and the formation of others is proceeding. Good progress has been made with the design of the seaplane itself, and its development into certain standard types for war purposes is proceeding rapidly.

The practical utility of aeroplanes and seaplanes for war purposes is increasingly evident, and the experiments in connection with bomb-dropping, wireless telegraphy, and gunnery have been continuous.

At certain of the bases round the coast the personnel of the Air Service have replaced the Coast Guard and are carrying out Coast Guard duties in addition to Naval Air Station work. As the Air Service develops it is hoped that a considerable number of the Coast Guard Stations may be transferred and economies thereby effected.

Good progress has also been made in the development of airships. The "Astra Torres" and "Parseval" airships ordered last year have been successful, and further orders for ships of this type have been placed.

Two of the leading shipbuilding firms, Messrs. Vickers' and Armstrong's, have undertaken the construction of airships in this country, and have been given orders for four and three airships, respectively.

The establishment of an airship station on the Medway with two sheds of the largest size is being pressed forward, and should be completed shortly. A site for another airship station in a suitable position has been procured, and the establishment of an inland airship station for training purposes is under consideration.

After full discussion with the War Office it has been decided to amalgamate the naval and military airship sections and to place the control of this branch of the Air Service wholly under the Admiralty. Arrangements have therefore been made to transfer the Army airships to the Admiralty, and in future all airship work will be carried out by the Navy. Several officers of the Army airship section with their men have agreed to transfer to the naval wing for the development of the Airship Service. Their experience in aeronautical work is valuable, and their services will be welcomed by the Navy.

Training in aeroplane work has been continued at the Central Flying School and the Naval Flying School at Eastchurch; and in airship work at Farnborough. The headquarters of the Airship Section will be transferred from Farnborough to the Medway as soon as the new station is completed.

At the Central Flying School four complete courses for naval and military officers have been held since its opening, and a fifth is now in progress. About thirty naval and military officers have been trained in each course, and a number of men of both Services have also been trained in airwork. In addition, a number of officers have been through short courses at the school. At the Naval Flying School at Eastchurch a large amount of training work has been carried out, particularly in the training of engine-room artificers, artisans, and other ratings in flying and in the general care and maintenance of aeroplanes of all kinds and their engines.

Arrangements for the special entry of civilians as officers and

mechanics have been made, and the regulations are about to be issued.

During the year there were three fatal accidents in the Naval Wing, one death being caused by a propeller striking an officer when on the ground, one officer being killed while flying as a passenger with a civilian aviator, and a third officer being killed while flying on duty.

In the autumn of last year Rear-Admiral Mark Kerr, C.B., M.V.O., was lent to the Greek Government as head of a naval mission. His staff comprises six Commanders, one Acting Commander, one Lieutenant qualified in Submarines, two Engineer-Officers, two Gunners, and one Secretary, all belonging to the Royal Navy, and one Flying Officer attached to the Royal Naval Reserve.

A considerable share of the duties connected with the Royal Flying Corps is being carried out by Royal Marine officers, several of whom are graded as Squadron or Flight Commanders.

The Brooklands Aero Club Dinner.

On Thursday the Brooklands Aero Club held their second annual dinner in the Pillar Hall at Olympia, and a very entertaining performance it was. Mr. Sopwith made an excellent chairman, and everyone enjoyed themselves thoroughly. Mr. Reginald Cary, of the Sopwith Company, proposed the health of the visitors, and Mr. Mervyn O'Gorman replied with his usual charm of manner, remarking that a speech should have a head and a tail, and that the tail should have a wag in it. Apropos of nothing in particular, presumably, but remarking on the possibilities of the right word if put in the wrong place, he recalled the story of the doctor who in filling up the death certificate of a patient, signed his own name in the space reserved in the form for the cause of death. He also recalled the story of a Russian officer whose subordinate filled in a report form of an incompetent officer and put his superior's name at the top of it. The superior, having complete confidence in his subordinate, merely wrote "noted" on it himself, and sent it forward to the authorities, and was consequently retired.

Mr. Sopwith, proposing the Press, made a sympathetic reference to the loss of Mr. Cody, whose first cross-country flight with every new machine he produced was always to Brooklands. Brooklands could be proud of its progress of late. Nearly all the sheds were now full, and he reminded us that Major Lloyd was the first to afford this country an opportunity of seeing upside down flying.

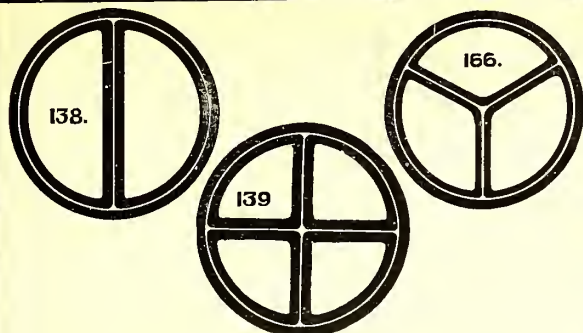
Mr. Massae Buist, of the "Morning Post," in reply, said that the attention given by the daily Press to aviation usually stopped at celebrating in big type the death of an aviator, and in concealing in very small type some very fine performance. This country, however, was to be congratulated on being particularly well served by its technical aviation Press.

Major Lindsay Lloyd, in proposing the health of the Chairman, remarked on the good work done by Brooklands fliers in bad weather, and Mr. Sopwith, in replying, said that he did not care who won the classic events abroad so long as they were won by British machines.

M. Chauvière, called upon for a speech, said that he had recently made a tour of the chief European countries, and that although Russia had produced its enormous Sikorsky biplane, and that Germany had produced excellent and reliable engines, no country showed such progress as this, where the British machines were the equal of those built in France.

Mr. Skene, formerly of the Vickers School, who recently looped the loop in France, was called upon to give an account of his experiences, and retorted that he did not see why if a chap happened to turn his machine over in the air he should get up an talk about it—an excellent example.

The closing of Olympia for the night put a stop to what promised to develop into a "right merrie evening" on somewhat 18th-century lines.



We have made application for a British Patent to protect the manufacture of tubing as illustrated above, and made up with one, two, three, four or more liners.

HAVING HAD TROUBLE, you naturally want something on which you may rely—and that is No. 138.

VIBRATORY TESTS carried out with plain gauge tubing of equal weight and with No. 138 go to show every time the vast superiority of the latter, which has five, six, seven and more times the "life."

Under no circumstances have the liners been broken or fractured in addition to the outer shell.

WEIGHT FOR WEIGHT, it is the strongest and "liveliest" tubing designed or produced.

THE LINERS may be of half-round or special sections of solid drawn steel tubing, or formed of rolled Swedish

"APOLLO"

**THE FIRST FOR
STRENGTH and SYMMETRY.**

No. 166 is said to be **33 %** stronger than ordinary tubing.

No. 138 is weight for weight, **STRONGER STILL.**

No. 139 is for use where weight is no object and exceptional strength is necessary.

steel strip, and the outer casing is drawn tightly over the combined section.

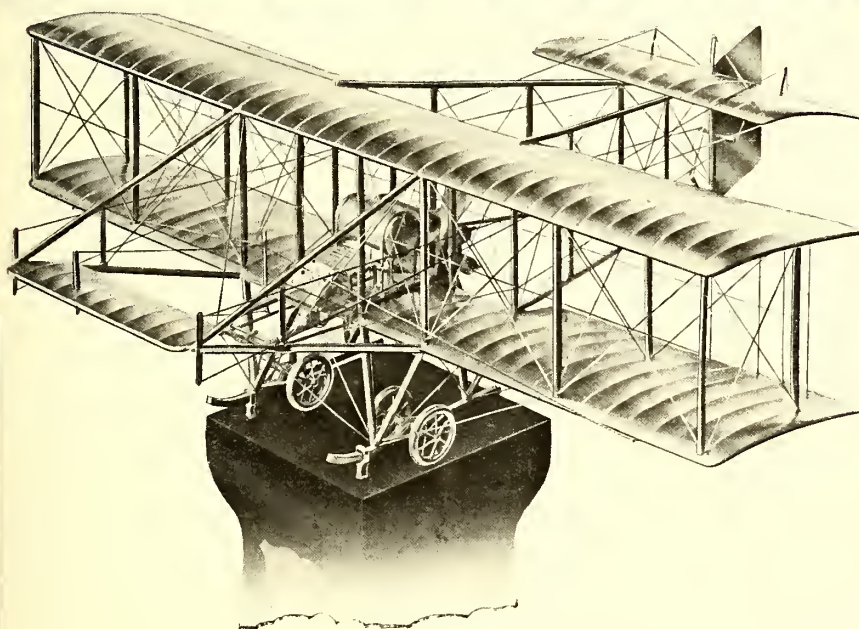
TRY THIS TUBING for yourself in a motor-cycle frame, by replacing the tube that has let you down in the past, or have it built into your next "test" machine. This may be done at our expense by arrangement.

TRY IT ALSO in a motor-car handle-bar stem and feel safe.

LET US HAVE YOUR SPECIFICATION showing your usual gauges, diameters, lengths, and quantities. We would like to quote you for anything tubular, up to and including plated work, in a quality that cannot be beaten.

ACCLES & POLLOCK, LIMITED.

**OLDBURY,
BIRMINGHAM**



Models



The Company specialise in the production of Silver scale Models of Aeroplanes, correct in detail and of fine workmanship.

Photographs and Estimates submitted free.

Representative sent to any address to take particulars.

Mappin & Webb LTD.

2, QUEEN VICTORIA STREET, E.C. 158-162, OXFORD STREET, W.
220, REGENT STREET, W.

Paris: 1, Rue de la Paix. Lausanne. Rome. Nice. Biarritz. Buenos Aires.

The Upavon Accident.

For the third week in succession it is unhappily necessary to record the death of an officer of the Royal Flying Corps. On Thursday, March 19th, Lieut. Hugh Frederick Treeby, 1st Batt. West Riding Regiment, attached on probation to the Royal Flying Corps for instruction at the Central Flying School, fell with a Maurice Farman biplane at Upavon and was killed.

From the evidence it is quite clear that Mr. Treeby, flying a comparatively new Maurice Farman, which was one of the best machines of its type at the school, was descending from a height of a thousand feet, and on flattening out from a spiral descent at about 200 feet, side-slipped and fell into a plantation of pines near the road. He was killed at once by the engine falling on him.

Mr. Treeby took his R.Ae.C. certificate on a Bristol biplane at Brooklands on November 16th last. The writer well remembers seeing him do so. Mr. Treeby's performance gave one the impression that it was one of the school instructors demonstrating what it was possible to do in a school biplane, for his turns were very sharp, and steeply banked, and his final glide was steep and perfectly straight. The performance was one which would have been good for a most experienced pilot, but it was remarked at the time by several people that it was rather too good for a pupil of limited experience in the air.

The evidence seems to suggest that on descending Mr. Treeby found himself in a descending current over the trees, which he was then approaching head to wind, and in an endeavour to prolong his glide to clear the trees, he flattened out too much and stalled the machine, which rolled over sideways, as it was bound to do, and dived nose first, not coming under proper control again before it struck the trees. But it will be remembered that after a steep descent the Renault engine is liable to stop owing to petrol from the tank in front not reaching the carburettor behind the engine, and it is necessary to

flatten out the path of the machine to refill the carburettor. This also might account for stalling the machine, and an alteration in the position of the carburettor, or the use of a pressure tank seems indicated. The evidence shows that the propeller was almost or quite stopped when it hit the trees. The wheels of the machine and the tail remained stuck in the trees, which probably accounts for the engine turning over and crushing the pilot.

Major Gerrard, R.M.L.I., flew over the trees half an hour after the accident to test the air currents, and found a downward trend. An examination by Major Fulton, Chief Inspector of Aeronautical Material, showed that the controls were in perfect order. It may be well to state here that there is no establishment in this country or in any other where machines are better looked after or are kept in more perfect order than at the Central Flying School, and that nowhere are machines in charge of persons better qualified to judge whether they are in fit condition to fly or not, though, of course, the School is not supposed to judge the design of machines, and until machines show obvious defects the School is compelled to use the machines supplied by higher authorities.

In this case it appears quite clear that the accident was caused primarily by the pilot finding himself in an unexpected down current at an awkward moment, and it emphasises the necessity for keeping clear of trees or other obstructions when about to land. This accident appears to be in its circumstances very similar to that which occurred, but fortunately without fatal results, to two officers of the Military Wing on a B.E. at Lilbourne during manoeuvres, but in the latter case the tank, being behind the carburettor instead of in front, there was no question of engine stoppage being a contributory cause. This matter of carburettor position needs immediate attention, for a steep descent followed by a quick pick-up of the engine may be necessary, and the failure to restart may, as in this case, be fatal.

Flying Accidents.

At the meeting of the Aeronautical Society of Great Britain at the Royal United Service Institution on Wednesday of last week a paper on "Lessons Accidents have Taught" was read by Colonel H. C. Holden, Vice-Chairman of the Royal Aero Club. Major-General R. M. Ruck was in the chair.

Colonel Holden said that since the Accidents Investigation Committee was formed by the R.Ae.C. early in 1912, nineteen fatal accidents had been investigated and the reports published. Great difficulty existed in ascertaining the exact causes of accidents to aeroplanes. The evidence of unskilled spectators was often worse than useless. It was of the utmost importance, as was recognised by the Home Office instructions to the police throughout the country, that there should be no interference with wreckage until the representatives of the Committee had examined it.

The causes of accidents might be divided into two classes—(a) those due to the pilot and (b) those due to faulty design or mechanical failure of some portion of the aircraft. Under (a) might be classed errors in judgment, hazardous flying, especially close to the ground, momentary loss of control, physical failure of the pilot owing to his being in an unfit state, and violent gusts or other atmospheric disturbances. Under (b) might be classed faulty design, failure of material, and faulty repairs or alterations imperfectly carried out.

Taking these causes in order, it was clear that want of sufficient knowledge or skill was not the most frequent cause of fatal accidents, or more learners would have been killed than experienced pilots. Against accidents due to dangerous flying common sense on the part of the pilots was the best safeguard. Momentary loss of control might happen to any pilot. Accidents due to this cause seemed to call for improvements in design, which would guard against slipping off bars or pedals, or hands slipping from wheels or levers, or the pilot slipping out of his seat.

Though the safety belt, with quick release device, was strongly advocated by some pilots, other pilots were just as much against it. On the whole the advantages of the belt more

than counterbalanced the disadvantages. In six fatal accidents out of eighteen, where the belt was not used, its employment might conceivably have saved the pilot's life, and in more than one of these cases might have enabled the pilot to regain control and avoid an accident at all. In any case, there could be no valid objection to the use of a safety helmet.

No pilot who was not sound in body or limb should be allowed to fly at all. Violent atmospheric disturbances could not be prevented, but it now appeared that a pilot was able to right his machine from any conceivable position, provided he had sufficient vertical space in which to manoeuvre.

At the present time there was no excuse for building aeroplanes without making proper calculations to ensure a sufficient factor of safety of all parts. To build a machine by the so-called rule-of-thumb method alone was to court disaster. The remedy for failure due to repairs or alterations not being properly carried out was obvious. Certain precautions could be taken against fire, but it was difficult to see how this form of accident could be entirely averted.

Prohibited Areas.

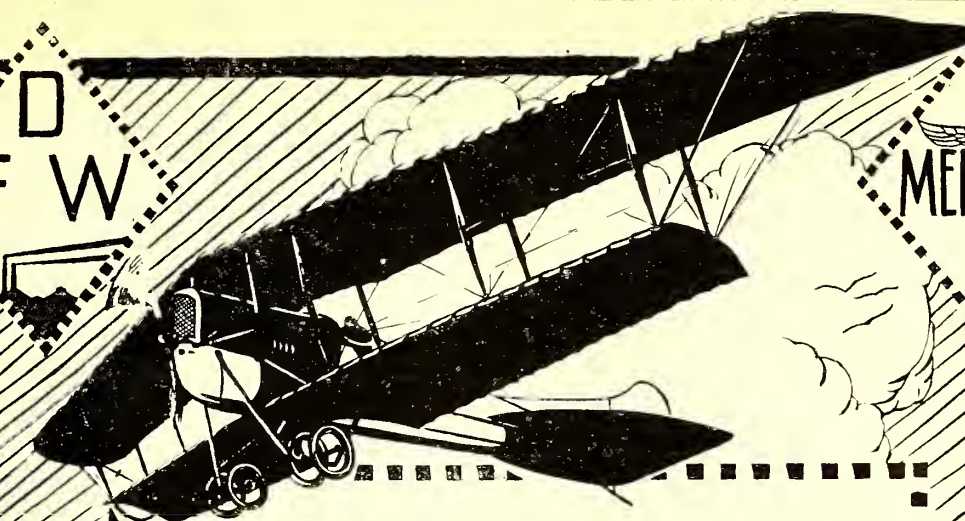
The Royal Aero Club has recently been in correspondence with the Home Office with reference to exemptions in Southampton Water, and the Committee at its meeting on March 17th received a communication from the Home Office intimating that the Secretary of State was prepared to grant the exemptions put forward by the club. The matter will be considered by the British Manufacturers' Sub-Committee of the Club.

A Legacy to the R.Ae.C.

A communication has been received from Messrs. Stanuall and Son, solicitors, of Dublin, to the effect that the late Mr. Edward Robert Mackay Wright, of Trinity College, Dublin, who died on October 19th, 1913, bequeathed the sum of £500 to the Royal Aero Club, to be used as the committee think best for the advancement of aviation. The late Mr. Wright was not a member of the Club, nor was he known in connection with aviation, and his legacy shows how aviation is appealing to the better-class people of the Empire.

D
F W

MERCEDES



German Aircraft Works Ltd.

BROOKLANDS AERODROME.

Manufacturers and Concessionaires of ALL the MOST SUCCESSFUL Terrestrial and Hydro-Aeroplanes (Etrich Monoplanes and inherently automatically STABLE "Arrow" type Biplanes), including those which hold THE WORLD'S RECORDS

FOR

DISTANCE, DURATION, &c., &c.

AND AS SUPPLIED TO THE

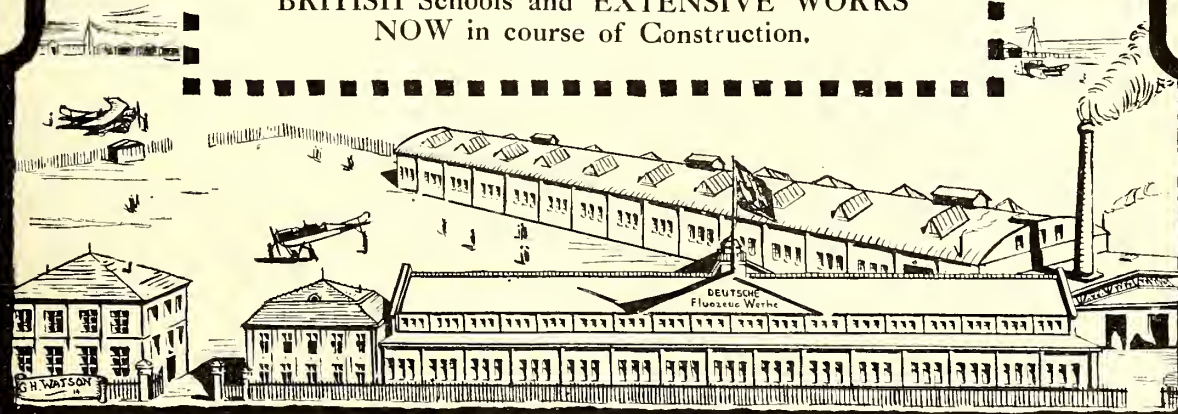
BRITISH, GERMAN, AUSTRIAN, RUSSIAN, TURKISH, BULGARIAN, RUMANIAN, CHINESE, South-American and other GOVERNMENTS.

ALL TYPES OF AIRCRAFT MANUFACTURED, from the FASTEST SCOUT to the SLOW, but WEIGHT-CARRYING, LONG DISTANCE SERVICE MACHINE.

IMPORTANT ANNOUNCEMENT.

As all our machines are constructed for WAR PURPOSES ONLY, WE ARE NOT EXHIBITING BY SPECIAL REQUEST, but, we shall gladly arrange demonstration flights to Government Officials, Military and Naval Attaches, etc. etc.

BRITISH Schools and EXTENSIVE WORKS NOW in course of Construction.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Aeronautics and the Naval Estimates.

BY W. E. de B. WHITTAKER.

The First Lord of the Admiralty has, during the past week, presented his Estimates for the coming year to the House of Commons, and has made a statement explaining and defending the coming expenditure. The total sum to be spent on the maintenance of a Navy, whose chief duties during the past few years have been to extinguish boredom in seaport towns, is close on £53,000,000, one million of which is for the upkeep and expansion of the Naval Wing, Royal Flying Corps.

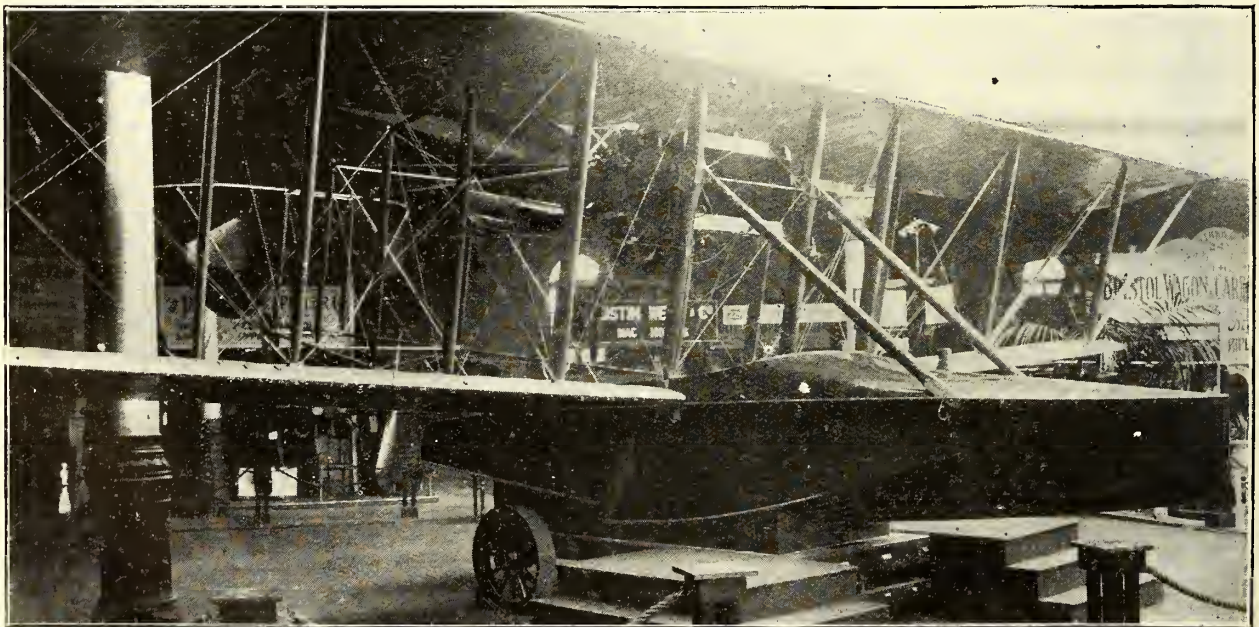
The task of the First Lord in matters of aviation is simple indeed when compared with that of his honourable friend at the War Office. The Navy may get what money is required with but little difficulty. The country in general has some enthusiasm for the Navy and for those who sail the sea in ships, an enthusiasm which, when wanted for the Army, is only forthcoming when disaster is imminent and terror strikes home. A few opportune deaths at the gate of victory, such as that of Nelson at Trafalgar, a few glorious battles in which the spoil was great, many days on which the sailor spent his speedily acquired wealth in riotous living, and the Navy was enshrined for ever in the grateful hearts of a people whose commerce gives them life. But with the Army it is different. The soldier is a class apart, who has but little sympathy with the amusements of the Man in the Street, and who, perhaps, shows his contempt all too clearly. The public see the troops only at those times when there is no work; hence, British logic, the soldier does not work. Occasional scandals, prominent when the chief character wears a red coat, further cause the soldier to be none too popular. And we have so few wars nowadays that the civilian is rarely brought to his senses even for a moment.

In the matter of aeronautics the difference is much the same. Colonel Seely has troubles which are unknown to Mr. Churchill. There is no R.A.F. in the Navy. There is no need to lie about the number of machines in possession, as the public will always plead that the Navy shall be given a chance. There

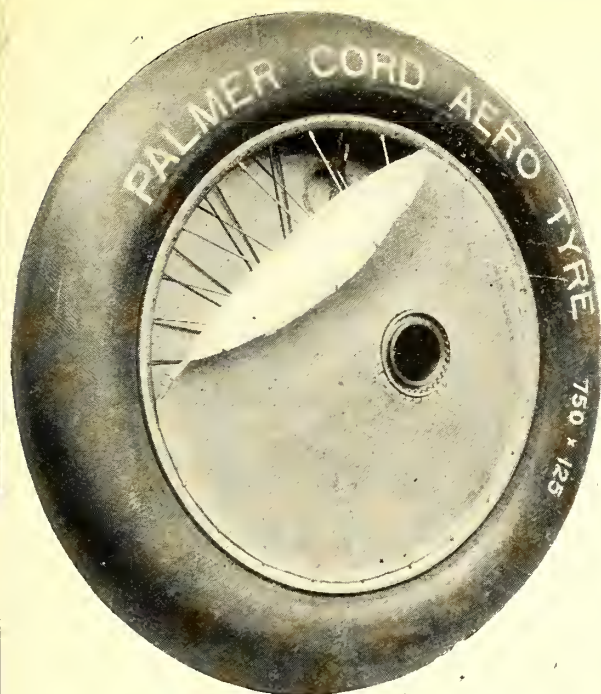
are no angry manufacturers indignant that their wares have received no better reception than fate has been pleased to give them. Most constructors of aircraft live in too holy an awe of the Admiralty as affairs are at present to themselves make trouble. Any order from the War Office is regarded with a jaundiced eye, as though it were always too small or too rigid in its conditions. On the other hand, the smallest order from the Navy is accepted with gratitude and happiness. Public sympathy can be gauged roughly by the newspapers. When a naval officer makes a flight of two or three hundred miles along the sea-coast, the public prints are full of his praises, and he is generally called "Commander." His career and the number of distinguished passengers he has carried are all made public property with that inaccuracy which adds so much charm to the British Press. But the many long flights made over bad country and under unfavourable conditions by Army officers pass almost unnoticed. This is possibly as the two Services would wish to be.

This year the sum to be devoted to aeronautics in the Navy is in the neighbourhood of £900,000. Last year the provision was £321,000, with the Supplementary Estimates last month of £260,000. Thus there is an increase during the year of £319,000. Mr. Churchill, in his printed Statement on the Estimates, speaks of £300,000 as the sum to be expended on the development of aeronautics during the year. Thus the remaining £600,000 must be regarded simply as recurring expenditure.

The largest portion of the estimated expenditure will, of course, be expended on the purchase of aircraft of all kinds. Before detailing this, it will be as well to state briefly what number are at present in possession of the Navy. In his explanatory speech on the Estimates, delivered in the House on March 17th, he said: "When I came to the Admiralty two and a half years ago, there were four monoplanes and five biplanes. We now have 103 aeroplanes, including five which have not passed through



The Sopwith Bat Boat, 200-h.p. Salmson Engine, built to the order of the Admiralty.



Olympia

Aero and Marine

EXHIBITION

MARCH 16th to 25th

PALMER

CORD AERO TYRES

- ¶ To those who follow Aviation, either as a pastime or a career, there is no more interesting accessory exhibit than the collection of Palmer Cord Aero Tyres on **STAND No. 74.**
- ¶ It is all to the good of the movement that this important detail of Aircraft should have engaged the attention of Tyre manufacturers with an enviable record for research and achievement in Motor Tyre construction.
- ¶ The tyres embody many novel and ingenious features, a remark which applies equally to the Palmer Aero Wheels and Quick Detachable Wheel Shields which will also be exhibited in several sizes and types.

Demonstrations of Tyre Making, the Resilience, Load Carrying and Lateral Stability of Palmer Cord Tyres at Intervals Daily.

The Palmer Tyre Ltd.

AVIATION DEPARTMENT,

119, 121 and 123, SHAFTESBURY AVENUE, LONDON, W.C.

Telegrams : "Tyricord, Westcent, London."

Telephone : Gerrard 1214 (4 lines).

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

their trials, but which I count in my total." Of these, 62 are seaplanes. The greater number of these aeroplanes—in fact, all but a dozen or so—have been purchased during the past year, though the First Lord does not say so. It now appears from this year's Estimates that £48,900 was set aside last year for the building of aircraft by contract, though in the last estimates this sum was merged in a non-committal sub-section of Vote 8. Another amount of £64,000 was hidden away in other parts of the same vote, and was devoted to the repairing of aircraft, experimentation, and such matters as gun-mountings.

This year a separate Sub-Head (C.C. Aircraft, Building and Repairing by Contract) is provided in Vote 8. Shipbuilding, Repairs, Maintenance, &c. The details are of interest, and I therefore reprint it in full:—

<i>New Construction.</i>		1914-15	1913-14
For Airships, Aeroplanes, and Seaplanes:		£	£
Already ordered:			
Hulls, Machinery, and Fittings		135,000	
Gun Mountings		2,500	
To be ordered:			
Hulls, Machinery, and Fittings		105,000	
Gun Mountings		—	(b) 113,000
<i>Repairs and Alterations.</i>			
For Repairs and Alterations, and for Replacements of Parts of Hull, Machinery, and Gun Mountings of Airships, Aeroplanes, and Seaplanes, and for Aircraft Experimental Machinery ...		72,500	

£375,000 (b) £113,000

(b) Provided under Sub-Heads A, C, E, and G in 1913-14.

When one considers that Airships are to be bought out of this money the allowance for the purchase of new aircraft is none too liberal.² It is, of course, easy for a First Lord to get Supplementary Estimates, but one would prefer to see expenses properly estimated at the beginning of the year.

The allowance for Gun Mountings is significant of a certain line of experimentation. It is very possible that most of this money will be expended on fittings for airships.

After the purchase of aircraft it is necessary to provide necessary housing and accommodation. For this purpose £181,650 is set aside, of which £149,350 is general, divided widely as follows: Vote 10. Works, Buildings, etc., Sub-head B. Part I.

Accommodation for airships, total estimate, £284,500; 1914-15, £94,440.

Accommodation for seaplanes, etc., total estimate, £73,560; 1914-15, £51,560.

Accommodation for aeroplanes, total estimate, £22,350; 1914-15, £3,350.

At Sheerness £12,650 is to be spent on accommodation for seaplanes, and on Salisbury Plain the Admiralty is paying a final sum of £18,950, completing its half-share of £45,300 towards the total cost of erecting the Central Flying School. Under Part III

The Royal Aero Club.

At the committee meeting on March 17th the following aviators' certificates were granted:—746, 2nd Lieut. W. W. A. Burn (New Zealand Staff Corps) (Maurice Farman biplane, Central Flying School, Upavon), Feb. 24th, 1914; 747, Leading Seaman Frank Barnshaw, R.N. (Maurice Farman biplane, Central Flying School, Upavon), Feb. 26th, 1914; 748, 1st Class A.M. Thomas Warren (Maurice Farman biplane), Central Flying School, Upavon), Feb. 26th, 1914; 749, Alfred Edward Bars (Grahame-White biplane, Grahame-White School, Hendon), March 7th, 1914; 750, Denis George Murray (Caudron biplane, Ewen School, Hendon), March 11th, 1914.

of Vote 10 a few allowances are made for repairs and maintenance at various places. Chatham gets £100, as also does Farnborough. Eastchurch is better off with £300, whilst £200 is voted towards small works at various places. This makes up the total as printed.

While referring to works and buildings it is perhaps well to quote further from Mr. Churchill's statement in the House of Commons. "Five seaplane stations have been established along the coast, and are being rapidly equipped. Two others are under construction. The land has been bought already, sheds for the machines, quarters, appliances, slipways, and other plant have had to be provided at once, and the expenditure has been very heavy."

Seven aircraft stations for naval use are not very many, but it is a move in the right direction. In this connection an extract from the printed statement may be quoted. "At certain of the bases round the coast the personnel of the Air Service have replaced the Coastguard, and are carrying out Coastguard duties in addition to Naval Air Station work. As the Air Service developed it is hoped that a considerable number of the Coastguard stations may be transferred and economies thereby effected." No better scheme could surely be devised. There is ample accommodation for officers and men all round the coast, and mostly in situations as convenient for aerial work in the future as for coastguard work in the past. Many of the old stations have excellent slipways and sheds capable of use as workshops if not as hangars. The duties of the Coastguard will fall naturally into the hands of the Air Service, which is by the nature of its powers, at least as capable of keeping a stony eye on the depredations of smugglers and others of similar attributes as was the old section of the Navy.

While dealing with accommodation for aircraft it is perhaps proper to deal with the provision of a special craft for the conveyance of seaplanes. In the programme for the coming year £80,000 is set aside, which with £872 for establishment and incidental charges makes up a total of £80,972 for the construction of a "new ship (for carrying seaplanes)." Of this £50,000 will be spent on Hull, Fittings and Equipment, £25,000 for Propelling Machinery, and £5,972 for other machinery. No further information is available, either as to dimensions, design, speed, capacity, horse-power, builder, or anything else. It is possible that it may be Diesel-engined, as was the "Zeelandia," and that, consequently, it will have a flush deck. Nothing is really known by any outside the narrowest official circle. One would imagine that it would be better policy to decide on the type of aeroplane best fitted for naval work on the high seas, and then to build a boat to suit the requirements of such aircraft. Any radical change in the design of seaplanes would mean a vast difference in the utility of any specially-built vessel. Possibly the Admiralty's experience with the "Hermes" during the early part of last year will have taught a valuable lesson. Unfortunately, that vessel was in itself most unsuitable for any work at sea apart from its uselessness as an aircraft ship. That the work on the new ship is to be expedited is obvious from the fact that so large a sum is laid down for one year.

(To be continued.)

The following aviator's certificate was passed in France.—Valentine William Eyre (Blériot), Feb. 26th, 1914.

The Support of British Industry.

The "Daily Mail" is to be congratulated on having discovered the existence of the British aeroplane industry. One learns with interest, though unofficially from either party, that the 80-h.p. Avro on which Mr. Raynham has made his various record flights has been purchased by the "Daily Mail," and that it will be flown by M. Salmel, so that the next aerial advertisement tour will at least be semi-British.

An Invitation to the Beatty School of Flying

It is impossible in the short space of an advertisement to explain fully the advantages of my system of training.

Intending pupils should write for full particulars or should visit the school.

When the training of my pupils is completed, they have not merely taken their certificates, they are trained pilots.

Tuition on Handley Page Monoplane & Wright Biplanes
£75.

Special terms to Naval and Military Officers.

(Signed) Geo. W. Beatty.

Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

GODDARD'S MOTOR, MOTOR-CYCLE, and CYCLECAR HOUSES.



ft.	ft.	ft.	£	s.	d.
8 x 6	x 7½	high	3	16	0
10 x 7	x 8	"	5	8	0
12 x 8	x 8	"	6	15	0
14 x 9	x 9	"	8	17	6
15 x 10	x 9	"	10	0	0

CARRIAGE PAID.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned in T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing.

COPY TESTIMONIAL.
HANOVER KENNELS,

LAMARSH, BURES, ESSEX.
March 2nd, 1914.

DEAR SIR,

The Portable Building arrived on Friday last. I am very pleased indeed with it. The work is most satisfactory and everything carried out according to my directions. The large house you made for me last October was much admired by a gentleman last week, a Master Builder (which he said was splendid).

Yours faithfully, M. HUTH.

Illustrated Catalogue, with prices of other houses, post free.

Also Greenhouses and Garden Appliances. Illustrated list.

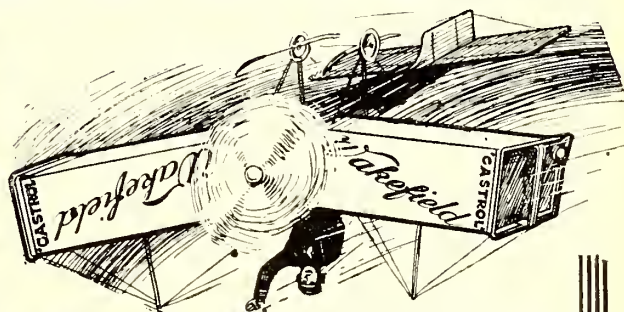
Makers of Portable Wooden Buildings of all descriptions.

GODDARD'S, LTD.,

Crown Works,

VICARAGE LANE, ILFORD, ESSEX.

Telephone: 880 Ilford



MR. B. C. HUCKS

AND

MR. G. HAMEL

lubricate their engines with

WAKEFIELD

'CASTROL'

Regd.

MOTOR OIL

FOR THEIR 'LOOPING' EXHIBITIONS.

Is it possible for us to advance more convincing proof of 'Castrol' excellence?

G. C. WAKEFIELD & CO.,
Wakefield House, Cheapside, London, E.C.

STAND No. 99 AERO & MARINE EXHIBITION
OLYMPIA.

C. D. C.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," March 20th:—

Royal Flying Corps.—Military Wing.—Lieut. Reynell H. Verney, the Army Service Corps, to be officer in charge of workshops (graded as a flying officer), and to be seconded. Dated March 16th, 1914.

NAVAL.

At Eastchurch weather prevented flying on Monday and Tuesday, but on Wednesday, despite wind and rain, the Sopwiths and some Shorts were out. On Thursday a Henri Farman and Shorts were up in the afternoon. Friday was clearer, and Shorts, an Avro, a B.E., and a Henri Farman were out. Saturday saw a B.E., some Shorts, Sopwiths, and a Maurice Farman out.

At Yarmouth on Tuesday, March 17th, Lieut. Bone took out the Maurice Farman, but had to come down after a short flight owing to engine trouble, landing cleverly on the beach between the piers without doing any damage, and getting away later from shingle. Rest of week stormy and no flying.

Capt. Barnby, R.M.L.I., arrived at Dundee from Leven on Thursday and flew back with the Short machine in 25 mins., which is about a record between the two places. The Borel is also going, and may have gone by now. The detachment at Dundee nearly lost its motor-launch on Sunday night of last week, as it sank at its moorings, but was rescued at low tide.

At Leven two new Short seaplanes, Nos. 74 and 77 (100-h.p. Gnoms), have been erected during the past week, and a third has been started. There has been no flying by the pilots stationed here. Capt. Barnby, on Short seaplane No. 42 (80-h.p. Gnome), arrived from Dundee on Wednesday forenoon. This machine is to be kept at Leven, and the Borel sea-monoplane No. 86 is expected shortly.

MILITARY.

As the result of recent accidents, an order was issued by the Department of Military Aeronautics last week prohibiting all flying on Mark B.E. biplanes in possession of the squadrons of the Royal Flying Corps, both at the Central Flying School and by the Military Wing.

It is reported that about the last week in February an experimental biplane of the R.E. type, 120-h.p. Austro-Daimler engine, built by the Royal Aircraft Factory, was brought out of its shed to make a test flight. While standing on the ground a gust of wind turned the rudder round suddenly, and the rudder-post snapped. The pilot was at the moment getting into the machine, and did not notice the mishap, but fortunately he was observed by spectators, who managed to stop him before he opened his engine out.

It is stated on fairly trustworthy authority that, when the wreck of the Mark B.E. 2 biplane on which the late Captain Downer was killed at Upavon, was examined, it was found that the elevator planes of the machine had bent downwards, presumably owing to the air-pressure when he brought the elevator hard back in the attempt to flatten out from his dive. These elevator flaps have an edging of exceeding light steel tube, and the fabric is extended over very light channel-steel ribs. The whole arrangement is strong up to a point, but is absolutely too light for its work, and would be bound to buckle when sudden pressure was applied, so that it would not spring back as would wood framing or ribs. One would respectfully draw the attention of the Department of Military Aeronautics to the fact that any machine which it is possible to break in any part owing to air-pressure, and nothing else, is unfit for use.

On Tuesday and Wednesday of last week M. Verrier delivered no less than six machines to the Royal Flying Corps, these being four Henri and two Maurice Farmans.

One gathers that on or about March 18th Mr. Norman Spratt, flying a R.E. biplane built by the Royal Aircraft Factory, and fitted with a 120-h.p. Austro-Daimler engine, reached an altitude of 16,800 ft. The flight has not yet been officially announced, and the barographs still have to be checked; but if the statement is correct, it beats the British altitude record handsomely.

The intentions of Squadron 2 at Montrose to create a record in mileage flown was evidently known to the weather clerk, who did his utmost to frustrate it. Monday's gale made flying impossible, and though the bad weather continued on Tuesday, a Maurice Farman went out to test the wind. It was followed by Capt. Waldron on B.E. 225, who afterwards went up with an air-mechanic as passenger for a district flight. Just as he rose, Lieut. Dawes arrived from Berwick on B.E. 327, having been about twelve days on the way from Farnborough. Lieut. Martyn has not yet arrived (Saturday).

A storm of wind and rain made flying impossible on Wednesday, but on Thursday Capt. Waldron was again out in B.E. 225, and Capt. Longcroft took a military officer as passenger in B.E. 228. The remainder of the week was a continual storm of wind and rain.

Lieut. Martyn, Squadron 2, R.F.C., left Acklington on Wednesday to continue his flight to Montrose, but had to descend at Ord, near Berwick, with engine trouble, and the weather also delayed him.

Some excitement was occasioned last week amongst the men of No. 2 Squadron by the arrest of one of the mess orderlies on various charges, and although double guards were placed on him he made two almost successful attempts at escape. He appears to have behaved somewhat desperately. One of the men of No. 3 Squadron has also been in trouble lately over various little matters of mistaken ownership of goods.

The weather at Montrose was perfect on Monday morning, and the machines were brought out in readiness for the day's work, when the order was received that no more flying was to be done until further orders. Thus the accidents of last week have had their effect, and it is presumed that the squadron will not fly again until a court of inquiry has been held and a full inspection has been made of all the machines.

FRANCE.

The escadrille in Morocco continues to do good work. Once more Lieut. de la Morlaye and Quartermaster Feirerstein have flown from Casablanca to Fez and back on a tandem Blériot entirely without incident, a distance of 600 kms. over the desert.

On March 10th a new type of Morane-Saulnier monoplane was tested at Villacoublay in the presence of Colonel Estienne. It is intended for range-finding in alliance with artillery. Another feature is rapidity of assembling, the times being officially checked as 3½ mins. and 2½ mins. respectively.

On March 18th Sergeant Jacquemart, of the aviation centre at Douai, accompanied by his mechanic, flew to Targette, near Charville, in a gale of wind, attaining a speed of over 120 m.p.h.

GERMANY.

The Kolberg civic authorities have resolved to build a hangar for three waterplanes, two-thirds of the expenses being paid by the town and one by the National Aviation Fund.

Of the 23 Zeppelins that have gone forth from the Friedrichshafen hangars, 11 are in good flying condition. Eight are owned by the German War Office and three, L.Z. 11, 13 and 17, better known as "Viktoria Luise," "Hansa" and "Sachsen," by the Delag Passenger Service. The military vessels are L.Z. 9 (Z. 2), L.Z. 12 (Z. 3), L.Z. 16 (Z. 4), L.Z. 19 (Ersatz Z. 1), L.Z. 20 (Z. 5), L.Z. 21 (Z. 6), L.Z. 22 (Z. 7), and L.Z. 23 (Z. 8). Nos. 24 and 25 are in course of construction. "L.Z." stands for Luftschiff Zeppelin, and is followed by the firm's shop number. "Z" is for Zeppelin, as a name for those owned by the army only. "Ersatz" means "replacement," and is used when a new ship takes the place of one which has disappeared.

On March 14th Lieut. von Lesser, of the 175th Infantry Regiment, one of the officers taking part in the aviation classes on the Koenigsberg ground, met with a fatal accident during practice.

A French aeroplane was seen manœuvring above the German-French frontier at Altmuensterol, in Alsace, last week, crossing over into Germany and back. It appears to have been manned by an N.C.O. and a sapper, who flew into a

FOR THE LATEST
AND BEST
DOPE

SEE THE



Stand
No. 104
Olympia

CELLON, LTD.

17, Old Broad Street,
LONDON, E. C.

Telegrams—"AJAWB, LONDON"
Telephone—5359 LONDON WALL

LOOPING THE LOOP

BY

B. C. HUCKS.

This is a reproduction of the striking 16-sheet Poster, in six colours, produced by The B. C. Hucks Company to advertise their demonstrations.

Demonstrations of
Looping the Loop by

B. C. Hucks

Mr. B. C. Hucks is the first British Airman to Loop the Loop and fly upside down, and is always a powerful attraction wherever he is announced to give his looping demonstrations.

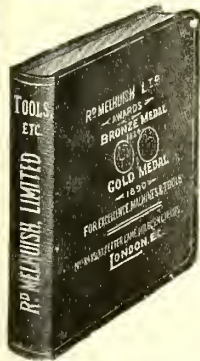


The B. C. HUCKS Company

Expert Organisers of Aviation Meetings

166, PICCADILLY, LONDON, W.

The B. C. Hucks Company invite inquiries from those who wish to promote a Demonstration of Flying in any part of the country. Their experience in the organisation of successful Flying Meetings is unique, and they will willingly give advice and detailed information on request. Address your inquiry to The B. C. Hucks Co., 166, Piccadilly London, W. Phone Regent 2942.



Write for New Engineers' and Metal-workers' (All Trades) Catalogue No. 20

Contains 560 pages.

ENTIRELY FREE on receipt of 1s. to defray cost of Colonial post & packing.

New Wood-workers No. 21
338 Pages. 6d. postage.

BRONZE MEDAL 1884
GOLD MEDAL 1890.

RD. MELHUISH Ltd.

Wholesale, Retail, and Export Tool, ..
Machinery, and Hardware Merchants

50 & 51 FETTER LANE, LONDON, E.C.

TOOLS

for Engineers, Metal Workers (All Trades),
Woodworkers' Tools & Machines (All Trades)

When you need tools, machines, appliances, etc., or any of the thousand and one things an engineer or woodworker does need at some time or another, you will find it a considerable help to have our Catalogues at your side. They illustrate and describe almost everything an engineer or woodworker has any use for—from machinery and every kind of tool down to nuts, bolts and screws. Everything we sell we guarantee—and our guarantee is that of a firm established 1828.

London Agents for Stuart Turner's Model Aero Engine. Large Stock.

Large stocks of Aeroplane Fittings as used by Amateurs. Write us your requirements; we will send you the lowest trade prices.

We carry the Largest Stock of Tools, Machines, and Hardware in Great Britain.

PASHLEY BROS.

SHOREHAM AERODROME,

SUSSEX.

Tuition for R.Ae.C. BREVET.

BEFORE JOINING ANY OTHER
SCHOOL, APPLY FOR PARTICULARS
OF OUR

Special Reduced Terms

. . . and . . .

New Concessions to Pupils.

Passenger Flights.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

dense cloud-bank and lost their bearings. On clearing the cloud they saw their error and immediately flew back to France. A report was sent to Belfort by the German authorities, and the two soldiers will be punished.

Seventy-seven entries have been received for the Prince Henry Circuit and the scouting flights not included in the event itself. Entries are restricted to 20 civilians and 20 soldiers, and as the factories entered 34 machines and men, 14 will have to be struck off. Nevertheless, the entire German industry will be represented, as several of the large firms nominated two or three aeroplanes. The 20 officers will fly military-owned makes, including Rumpler and Albatros Doves, and Albatros, Aviatik, and L.V.G. biplanes. Twenty-three officers take part in the various reconnaissances. Thirty-four entries from civilian firms! Where is England now?

A biplane, manned by two Freiburg officers, came to grief last week in Strassburg. On attempting to continue their journey the machine fell and smashed up entirely. One of them broke both legs, the other escaped with minor injuries. A death is reported from the Metz station, where Lieut. Goutard had a bad accident, succumbing to his injuries the same evening.

GERMAN SOUTH AFRICA.

Aviation stations in the German South-West African colonies will materialise very shortly. A number of soldiers and sergeants are receiving instruction at the L.V.G. works, Berlin, and Aviatik Co., Mulhouse, to be sent later on to South-West Africa with their aeroplanes, and stationed at Ketmanshoop and Karibib. Officers who have passed their field-pilot examination will go out to take charge of the experiments. Should these prove successful, as is hoped, the next German Budget will contain a grant for the upkeep of large aviation stations in South-West Africa. During the general exhibition to be held in German East Africa in the course of the present year demonstration flights are to form a special attraction.—B.

RUSSIA.

On March 21st Capt. Andreadi was killed at Sebastopol as the result of a bad landing. Capt. Andreadi was one of the best of Russian aviators, and made fame by flying from Sebastopol to St. Petersburg.

ITALY.

P. 5, leaving Verona at 8 a.m., was seen in the Milan and Como district about mid-day on 14th inst. After a stay of a few hours at Milan the return journey was undertaken, and Milan was reached in daylight. The experience gained by the crews in this sort of cruise, now almost daily events, must be immensely valuable. The trips, too, are mostly made quite irrespective of weather conditions.

Work is going on energetically at Iesi, on the Adriatic

shore, where, as at several other of the Italian military air stations, dirigibles and aeroplanes will dwell together in peace time, at any rate.

One gathers that the promised experiments with gun-platforms on the "deck" have been made with one of the older dirigibles, and found, if nothing else, costly.

Since the 15th inst. flights by aviators with the machines belonging to the several northern escadrilles have been singularly frequent, but not especially noteworthy. Also from Centocelle—still in the delirium left by the loopers—and Tripoli unusual activity is reported.

One regrets to read that, owing to a cable being too taut, a tear was caused—and discovered, luckily—in the outer envelope of the "Ciy of Milan" a few days ago when the ship was in the air. The shed was reached under power without much difficulty. The point was one of those still under test, and preparations for strengthening the envelope had actually been made.—T. S. HARVEY.

On March 15th the Italian military dirigible P. 4 left Vigna di Valle for Campalto, which it reached in 8 hours. During the previous month this ship did a good deal of work in bad weather, flying from Campalto to Turin, and from Turin to Bracciano.

BELGIUM.

Lieut. Demanet, of the Belgian army, has been making a number of night-flights. On March 20th he flew for some time over Hasselbois at a height of 3,000 ft., his biplane being illuminated with 20 small lights distributed along the planes. A considerable crowd assembled in the town square, and Lieut. Demanet entertained them by switching off the lights and disappearing in the darkness, to reappear in an unexpected direction.

PORTUGAL.

A military aviation school is being formed, and they possess already an aerodrome having an area of 190 acres. The instructor is M. Sallés, a French aviator. An Avro, a Deperdussin and a Farman are already in possession of the school, and operations will start this month.—N. A. M.

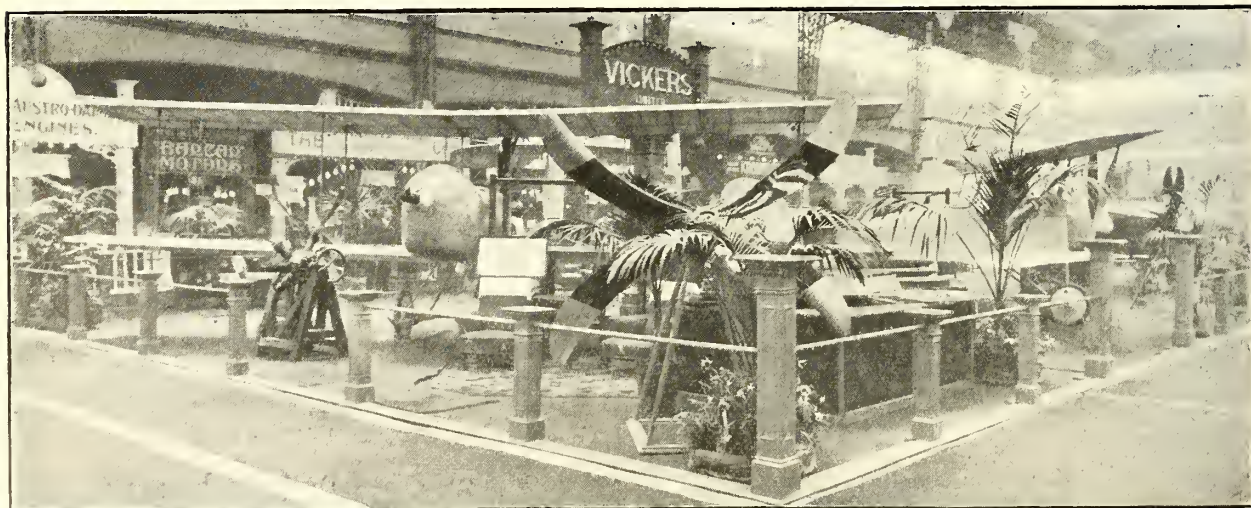
U.S.A.

The roster of the licensed aviators who are members of the U.S. Aviation Reserve has now been filed with the War Department. The list at present consists of some forty names.

Foreign Notes.

France.

Captain E. C. Bass, who took his Curtiss flying boat to the Riviera recently, sends a very interesting account of the behaviour of the machine under very trying circumstances. Mr. Walter Brock, the well-known American pilot, who is in charge of the boat, took her out from Nice, intending to



The Vickers Stand at Olympia, showing the Vickers-Levasseur air-screws, and the fighting biplane with its machine-gun.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
 LONDON AERODROME, HENDON.

WHITE and THOMPSON Ltd.

SOLE CONCESSIONAIRES

FOR THE

CURTISS
FLYING BOATS
and ENGINES

IN THE UNITED KINGDOM
 AND THE
 BRITISH COLONIES

MIDDLETON, BOGNOR, SUSSEX

Telephone—
 48 Bognor

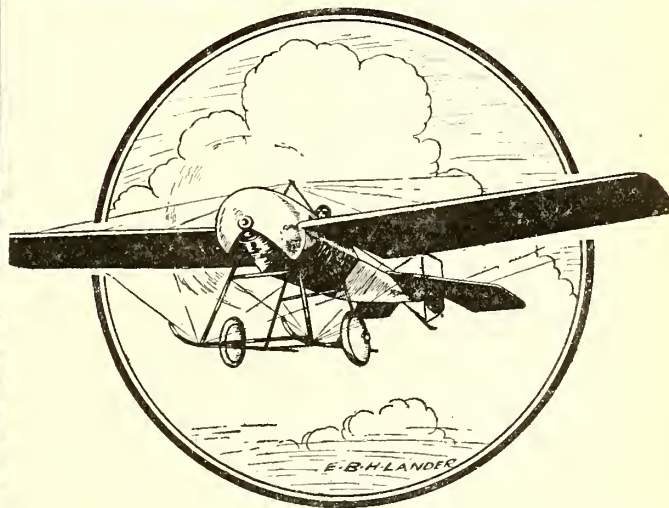
Telegrams—
 "Soaring," Bognor.

"PERRY-BEADLE"

BRITISH BUILT
FLYING BOATS
 AND
AEROPLANES.

Every class of Aeronautical
 constructional work carried out.
 Send us your enquiries for work
 to be executed to your own
 ideas. Our staff of highly
 trained and technical designers
 :: :: is at your disposal :: ::

Offices and Works:
GOULD ROAD, TWICKENHAM.
 Telephone—RICHMOND 1109.



**"Blackburn" Monoplanes, Biplanes,
 and Hydro-Biplanes,
 Propellers and Accessories.**

THE BLACKBURN AEROPLANE COMPANY,
BALM ROAD, LEEDS. (Stand 63 Olympia).
 Telegrams—"Propellers, Leeds." Phone—2822 Central.
 London Offices: **H. A. TURRILL, 104, High Holborn, London.**
 Telephone—4950 and 1791 Holborn.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

fly to Cannes accompanied by Mrs. Bass. The machine, which by the way has been fitted with a 125-h.p. Anzani, lifted superbly, and left Nice in splendid weather. However, after ten or fifteen minutes, a terrible mistral blew up with great suddenness and caught them off Cannes, where they had to descend before reaching harbour, owing to the petrol not reaching the carburettor. There they were buffeted about in huge waves for a quarter of an hour or so, as none of the shore boats dared to put off to their assistance.

Eventually they were blown ashore on the rocks, where a number of fishermen went into the water and rescued Mrs. Bass and Mr. Brock, and dragged the Curtiss over the rocks to comparatively smooth water behind.

It speaks volumes for the Curtiss boat that she stood up to such a severe test, for beyond needing new ailerons and elevator, and some attention to the hull, comparatively little damage was done. The force of the mistral was so great that six yachts lost their sails or masts. It is hoped that the boat will be ready for further flying in two weeks.

M. Scoffier has acquired a Blériot seaplane on which he has been flying at Nice and Beaulieu, carrying many passengers.

On March 17th M. Garaix, on the Schmitt biplane, flew with seven passengers to a height of 1,650 metres (about 5,350 ft.) in 31 mins., thus creating a world's record. The machine was fitted with a 160-h.p. Gnome, Oleo plugs, and a Chauviere propeller. Efforts will be made to beat the height record with nine passengers, which is now held by the Sikorsky biplane.

M. Ehrmann, the famous Algerian pilot, who sustained terrible injuries at the Vienna meeting some two years ago, has been looping the loop at Chateaufort on a Blériot monoplane. Truly the aviation microbe is ineradicable.

Germany.

It is announced that Herr Viktor Stoeffler, the German record-breaker, is definitely retiring from flying, as it stands between him and his wife that is to be.

Linnekoelgel beat his own German altitude record of 4,300 metres last week in Johannisthal, reaching 4,900 metres (about

16,000 ft), only 20 metres less than the late M. Perreyon's world's record, piloting a 100-h.p. Rumpler-Mercédès, with Naval-Lieut. von Pluschkow as passenger. According to the thermometer, 34½ degrees Celsius below zero were encountered. The instruments froze up and the passenger acquired a violent headache.

Professor Donath recently showed at Johannisthal that by operating an electrical signalling mirror with a lamp of 10,000 candle-power it was possible to hold communication with an aeroplane 8 kms. distant.

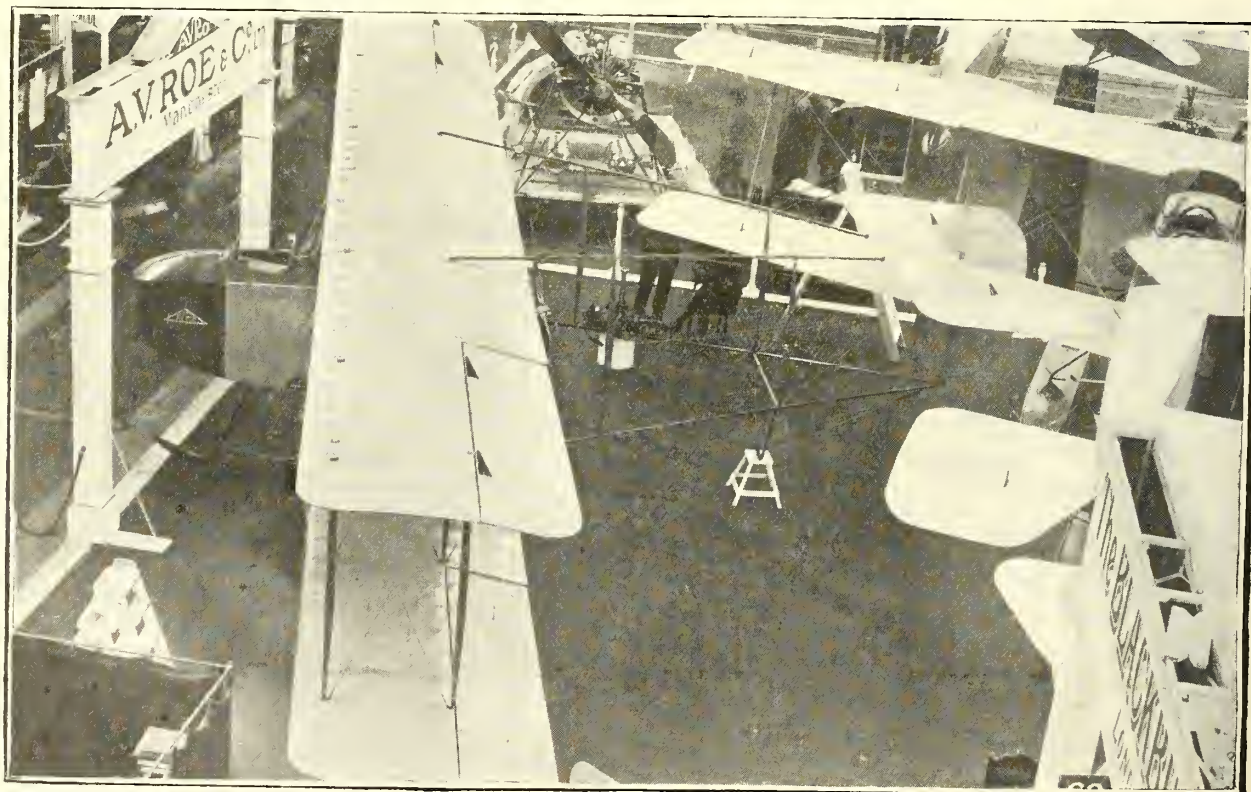
German papers comment on the fact that no English machine have been entered for the Monaco Rallye, Britain's sole representative, Lord Carbery, piloting a French machine. Five German aeroplanes will start, for besides the two entered by Hirth, and one each by Stoeffler and Schlegel, Gaubert, too, will fly a German biplane though with a French engine. Verily, this gives one furiously to think!—B.

Russia.

The accusation of espionage against Mischewski has been dropped for lack of evidence. He will, however, be tried for flying across the forbidden zone of the Warsaw fortress and for crossing the frontier without holding the international permit. Herr Hans Berliner, the well-known balloonist, is still detained at Perm, where he landed from his world's distance record trip of 3,180 kilometres (nearly 2,000 miles). Although he and his comrades, who are kept at Perm also, had nothing on board but log-books and maps, the espionage charge is being upheld. Daily they have to undergo an inquisition of five or six hours, and it was more than a fortnight before they were permitted to communicate with the German consul. Herr Berliner has written home to have the "Lilienthal" balloon entered for the Balloon Gordon-Bennett race, as he cannot tell how long he may be kept in Russia. He remarks that the world's record has cost him very dearly.—B.

Italy.

One understands that Dr. Gobbi is entering his amphibious monoplane, illustrated in Vol. V, No. 25, of this journal, for an International French Concourse, a competition to encourage flight at low as well as fast speeds and vertical ascent.



The Avro Propeller Biplane, seen from the gallery.

THE
Monk Engineering Co.,
LTD.

High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES!



If you want
**SUCCESS
RELIABILITY
& EFFICIENCY**

use

Hobson

POGNON PLUGS.

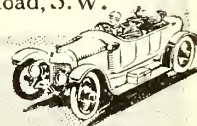
Special types for Gnome & other rotary engines

LATEST SUCCESSES, 1914.

JANUARY.
7 World's Records
at Brooklands

FEBRUARY.
Swedish Winter Trials,
Gothenburg Cup.

H. M. HOBSON, Ltd.
29, Vauxhall Bridge Road, S.W.



STAND No. 70

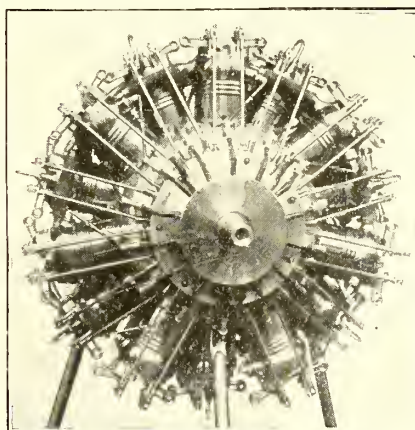
**EASTBOURNE
AVIATION
CO., LTD.**

ARE EXHIBITING A

TRACTOR BIPLANE

WE HAVE EXCELLENT ACCOMMODATION
FOR **WATERPLANES**

**SALMSON
AERO-ENGINES**
SYSTEM CANTON - UNNE.



'Phone No.:
7 Stroud.

Tele.
Address:
Humpidge,
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

London Office:—87, Victoria Street, S.W.
'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Landini, so successful a pilot of the S.I.A. water-mono, while flying a new hydro-biplane over Lake Como a few days back, was caught by a gust of wind, and as he had not got up to any height, was blown down onto the water with dire results to the aeroplane, but without personal harm, being rescued with his passenger by a barge, the boat-hull seemingly saving them. Everyone now begins to realise that this is not the place for experimental or training work, for which both Lakes Maggiore and Garda are getting popular.

Switzerland.

Experiments are now being carried out with a passenger service over the Lake of Geneva. M.M. Marcel Lugin and Adolphe Montalozan have bought a Henri and a Maurice Farman waterplane, and it is proposed to have regular points of call and regular tariffs. The actual service is to start in April, and it is hoped to keep on for eight months of the year.

On Monday, March 23rd, M. Borrer was killed while looping the loop at Basle. His machine fell from 1,000 feet, and the pilot was instantly killed. Fellow aviators had warned M. Borrer to desist from looping, as his machine was unfitted for the purpose.

Egypt.

Jules Védérines has arrived at Alexandria, without incident for the nonce. He states that the officers of the Nord Deutscher liner, "Prinz-Heinrich," have been very friendly with him—probably because of their ignorance of the French language!

U.S.A.

Mr. Anthony Jones, chief pilot of the Blériot Co. and in charge of the "St. Petersburg-Tampa, Fla. air-line," has covered 3,400 miles in the Benoist air-boat in scheduled trips, as well as 100 hours of school flying, during the last two months. All this with one slight injury to the hull of the boat.

The First British Biplane Looper.

On the morning of March 23rd, Mr. J. B. Thornely looped the loop on a Henri Farman biplane at the Eastbourne Aerodrome. Mr. Thornely, who is under eighteen years of age, passed his certificate tests as a pupil of Mr. F. B. Fowler of the Eastbourne Aviation Co., Ltd., about six months ago. He is the son of Professor Thornely of Merton Hall, Cambridge. The machine on which he performed is a genuine Farman, 80 h.p. Gnome, which has been specially reinforced for looping by having extra bracing wires fitted to the tail and higher and stronger cabanes to the upper plane. The writer saw the machine

in process of reconstruction a few weeks ago, and the Eastbourne Aviation Co. seem to have made a very good job of it.

The R.F.C. and N.A.S. at Olympia.

On Saturday last about 120 non-commissioned officers and men of the Royal Flying Corps were entertained at lunch at Olympia by the Royal Aero Club. Incidentally, a paternal Government left them to pay their own fares from their various stations and back, so it says much for the keenness of the men that they should have gone to the expense of journeying from and to Salisbury Plain, Calshot, Farnborough, Eastchurch, and so forth at their own expense. The Marquess of Tullibardine, Chairman of the Royal Aero Club, was in the chair, and in a neat speech welcomed the guests. He also told them something of the support not given by the Government to the early aeroplane experiments at Blair Athol. Mr. Sopwith touched on the importance of air mechanics to aviators, and Mr. Holt Thomas spoke of seaplane work. Petty-Officer Andrews, for the Naval Air Service, and Sergeant-Major Levick, for the Military Wing R.F.C., two splendid examples of their respective Services, made brief and effective replies. The smart appearance and the obviously high level of intelligence of all the men present showed that, although the expression originated with Colonel Seely, the R.F.C. has a right to be called a *corps d'élite*. The Editor of THE AEROPLANE wishes to avail himself of this opportunity to thank the numerous N.C.O.s and men of the R.F.C. who called at this paper's stand for their expressions of approval of the paper, and of the work it is endeavouring to do for the Air Services.

Concerning F.E.2.

One notices in the official organ of the Royal Aero Club a denial by Mr. Winfield-Smith of a statement attributed to him by a correspondent of this paper referring to the dangerous condition of F.E.2. One would suggest that if Mr. Smith wishes to deny the statement it is quite open for him to do so in the paper which made it. Perhaps Mr. Smith would also like to deny other statements attributed to him by correspondents to the effect that the F.E.2 on several occasions got out of control; also that he demonstrated at Shoreham before starting on a flight that the warp of the F.E.2 was practically ineffective, and on one side almost inoperative. The columns of this paper are always open to its critics, or to replies to criticisms published in its columns, provided the said critics have the courage to disclose their identity, in which case their anonymity will be rigorously observed if desired.



The first of six Sopwith school seaplanes for the Greek Navy being tested by Mr. Pixton at Hamble.

L. CHAUVIÈRE'S INTEGRAL PROPELLER

HOLDS THE WORLD'S RECORDS FOR
SPEED, HEIGHT, DISTANCE
AND DURATION.

THE INTEGRAL PROPELLER CO., LTD.,
307, EUSTON ROAD, N.W.

Works: 1b, ELTHORNE ROAD, UPPER HOLLOWAY, N.
Telegrams: "Avirop (Eusroad), London." Telephone: North 912.

Oleo

THE ONLY PLUG
WHICH HOLDS THE
WORLD'S RECORDS FOR

**DISTANCE, DURATION,
SPEED & HEIGHT.**

Parmelin crossed Mont-Blanc with
Oleo.

Garros crossed Mediterranean, won
world's Championship
with Oleo.

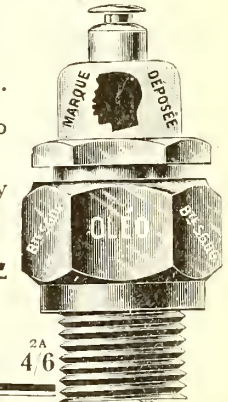
Pegoud loops the loop with Oleo.

Bonnier flew from Paris to
Cairo with Oleo.

and all the most famous airmen fly
with Oleo.

OLYMPIA, STAND 37.

LEO. RIPAULT & CO.
64a, POLAND STREET, W.
'PHONE — GERRARD 7758



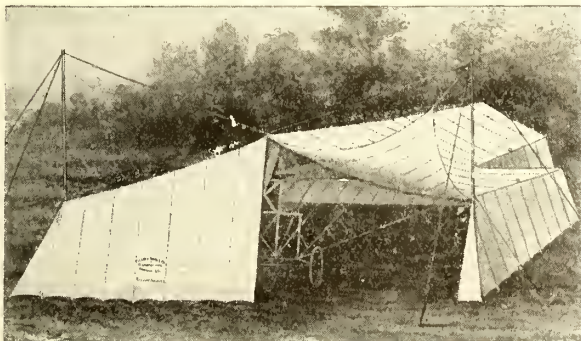
TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane
is one of PIGGOTT'S PATENT AEROPLANE TENTS.

Pattern No. 3, suitable for a Bleriot Monoplane. Price in water-
proof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back
of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



indispensable for Circuit Flying or Cross Country work.
Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.
(Contractors to the War Office and Admiralty.)
220, 222 & 224, BISHOPSGATE, LONDON, E.C.

WOOD — for — MODELS. WE LEAD

You want the finest quality Wood. We
have a large stock of the finest Silver
Spruce, White Birch, Ash, Satin
Walnut, Poplar, etc., from which we
manufacture Hollow Spars, H.T. and
U section spars, Circular tubes, Pro-
peller blocks, and wood for all parts of
models.

For Catalogue please send trade card to

W.G. EVANS & SONS,

2, Williams Mews,
Stanhope Street,
Euston Road,
LONDON, N.W.

Tel.:—MAYFAIR 2458.

Questions in the House. Oral Answers, March 18th.

Mr. JOYNSON-HICKS asked how many flying, apart from administrative, officers there are in the five effective squadrons of the Royal Flying Corps, Military Wing.

Mr. BAKER: There are seventy-five officers in these squadrons, of whom all are flying officers, and none are engaged on administrative work alone.

Mr. JOYNSON-HICKS asked the history of B.E.204, upon which Capt. Allen and Lieut. Burroughs were killed, stating what previous mishaps it has had and when it has been repaired, and when inspected other than by officers of the squadron.

Mr. BAKER: I would refer the hon. gentleman to the replies given yesterday to questions put by the hon. Member for the Ludlow Division, and to the undertaking which my right hon. friend then gave to supplement his answers by a full statement on the first possible day.

Mr. JOYNSON-HICKS: I beg to give notice that I will raise this question on the Army Votes on Monday.

Mr. JOYNSON-HICKS asked the number of officer fliers on the 1st March, 1914; of that number how many were on active service; how many in the Reserve and Special Reserve; and of the number on active service how many hold non-flying posts or have not flown since January 1st, 1914.

Mr. BAKER: The total number of officers actively employed in the Reserve, under training and awaiting courses, is 197.

Mr. JOYNSON-HICKS asked how many machines of the F.E.2 type, upon which Mr. Haynes was killed at Wittering, are in possession of the Royal Flying Corps or in course of construction.

Mr. BAKER: The answer is, None.

Mr. JOYNSON-HICKS asked how much of the £1,000,000 in the Army Estimates for aviation is for the Central Flying School, for the Royal Aircraft Factory, for the actual squadrons, and for headquarters administration respectively.

Mr. BAKER: The approximate figures are:

Central Flying School	£78,000
Royal Aircraft Factory	88,000
Squadrons	900,000
Headquarters administration	5,600
Inspection and miscellaneous services ...	28,400

Mr. JOYNSON-HICKS asked whether seniority and promotion in the Royal Flying Corps go by Army rank or corps rank—that is to say, whether a captain in the Army, who has just taken his flying certificate, coming to-day into the Royal Flying Corps, would take rank there above officers junior to him in the Army who have been working in the corps for, say, two years.

Mr. BAKER: In each grade of the Military Wing officers rank according to their seniority—permanent or temporary—in the Army. Promotion to higher grades in the wing is by selection.

Mr. DOUGLAS HALL asked whether there is only one ex-civilian in Course V of the Central Flying School for the Military Wing and more than half the Naval Wing there are ex-civilians; and, if so, what is the reason.

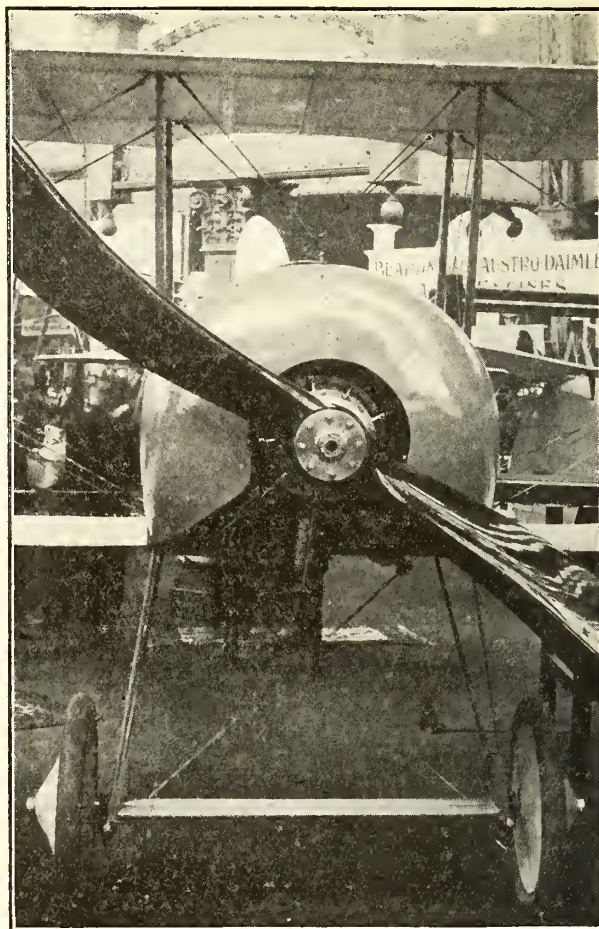
Sir WILLIAM BULL asked whether, in view of the shortage of officers in the Regular Army, the War Office is encouraging or discouraging civilian pilots from joining the Military Wing for continuous service.

Mr. BAKER: As stated, only one ex-civilian is attending Course V. The reason is that the majority of the civilian applicants for commissions in the Military Wing desire Reserve service only, whereas, until the Military Wing has been brought up to strength, it is necessary to restrict attendance almost entirely to officers who are prepared to undertake continuous service. Eight ex-civilians will attend the next course.

Mr. JOYNSON-HICKS: Has the hon. gentleman any figures to show that the majority of civilians desire Reserve service and not continuous service?

Mr. BAKER: I cannot give any figures.

Mr. DOUGLAS HALL asked how many of the Reserve officers of the Royal Flying Corps are Army officers who qualified for the Reserve, but who have done no flying since, and who have never formed part of an active squadron; and how many are



Front view of the Vickers "Scout" (100-h.p. Gnome).

civilians who have been recommended for continuous service, but are not yet absorbed.

Mr. BAKER: The answer to the first part of the question is four, and to the second part one. The officer in question will shortly be posted to the Military Wing.

Sir WILLIAM BULL asked how many of the civilian officers who were selected by the War Office for Course IV at the Central Flying School, and recommended thence for continuous service, are still unabsorbed, and what is the reason.

Mr. BAKER: Of the two ex-civilian officers recommended for continuous service from the Central Flying School, one was posted to the Military Wing, and one to the Reserve. The latter will shortly be posted to the Military Wing.

Oral Answers, March 18th.

Mr. ORMSBY-GORE asked the Secretary for War why an officer to the Royal Flying Corps, who was injured by an accident to the aeroplane which he was piloting on February 3rd, but who has been only temporarily prevented from flying, has been docked of his flying pay for a portion of last and the whole of this month.

THE SECRETARY OF STATE FOR WAR (Colonel Seely): I am inquiring into this case.

Mr. F. HALL asked the Secretary of State for War if any system is in force on the lines of that adopted in Germany for improving efficiency in aeroplane construction and skill in pilotage by the granting of prizes and bonuses, and generally for encouraging military aviation; if he is aware of the sums expended annually by Germany for these purposes; and if he will state what expenditure is provided for under these heads for the present year in this country.

Colonel SEELY: The answer to the first and third parts of the question is the negative, and to the second part in the affirmative.

DOPE WITH NOVAVIA

9, Coral Street, W.C.

THE DOPE


A "Friend in Need" for the Aviator
'TABLOID' BRAND FIRST-AID No. 706
A featherweight pocket outfit of
first-aid dressings, etc.
Aluminium, price 7/6 All Chemists
Burroughs Wellcome & Co., London

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SAFETY.

BLERIOT-AERONAUTICS, Belfast Chambers, 156, REGENT STREET, LONDON, W.
Works: **BROOKLANDS, BYFLEET, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telegrams—

"BLERIOPLAN, LONDON."

Telephone—

REGENT 3653.

J. BONN & CO. Ltd. 97 New Oxford Street, [LONDON, W.C.]

The Reliable Firm for HIGH CLASS MODEL AEROPLANE ACCESSORIES.

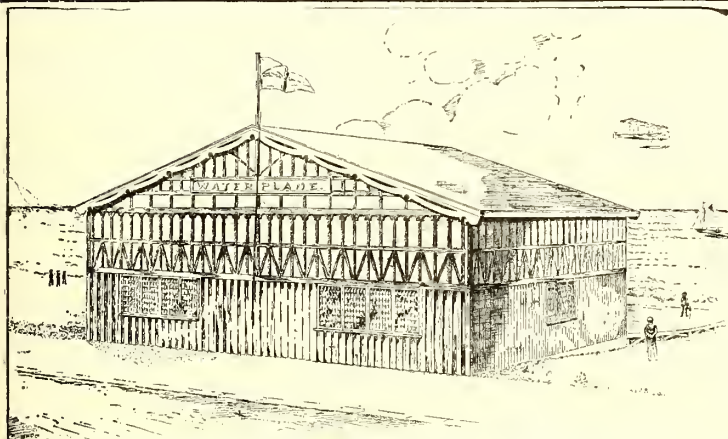
ILLUSTRATED CATALOGUE ON APPLICATION.

PROPELLERS A SPECIALITY. Any Type or Size built to Customers' Instructions.

Hollow Spars of all descriptions built to instructions.

Appointed by CELLON, Ltd. Sole Agents for Cellon Dope No. 14 for Model Makers; Cellon Varnish No. 13 for Wood Work; Cellon Sheet '125 m/m thick for Model Floats, etc.

PRICES ON APPLICATION.



HANGARS.

Plain and Cheap, or Ornamental
for Watering Places, etc.

Soundest possible construction.

Allport's Sliding Steel Doors are the
only perfect type and can be fitted
at slight extra cost.

Write for quotations for any size to:

The Wire Wove Roofing Co.
108, Queen Victoria St., London, E.C.

THE HAMBLE RIVER LUKE & CO. LTD. HAMBLE, HANTS, ENGLAND

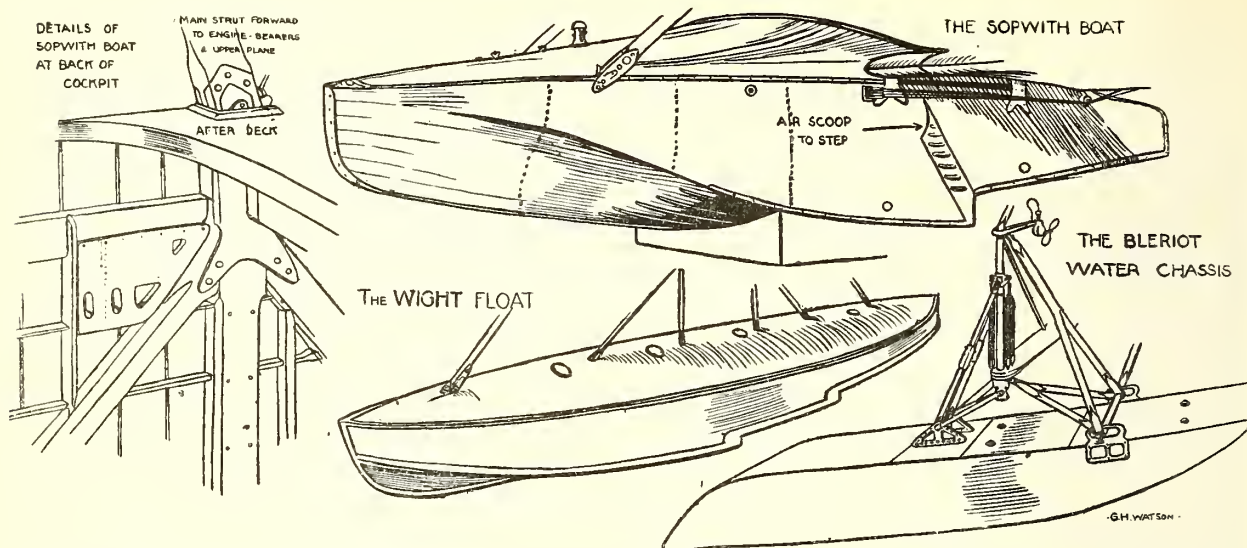
H NAVAL SEAPLANES H

Telegrams: "ENGINEERING, HAMBLE."

Telephone: No. 1 HAMBLE

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Floats at Olympia.



The floats on the Henri Farman seaplane on the Aircraft Co.'s stand are of the plain, unstepped pontoon type invariably used on this make of seaplane.

The springing arrangement, which was briefly referred to in last week's issue, is plainly shown in the accompanying sketch, which is practically self-explanatory. The rectangular block below cross-head B is a split brake-block of lignum-vitæ, whose pressure on the tube is regulated by the numerous milled nuts shown thereon. This brake-block, when properly adjusted, allows sweet and smooth movement of the telescopic tube, but deadens out the small vibrations which might otherwise occur.

The floats of the Blériot water-machine are of the "Tellier" unstepped type, with, one understands, flexible bottoms. The sketch shows clearly the simple manner in which the standard Blériot chassis has been adapted to this new purpose. The smaller sketch shows the tail-float and water-rudder attached to this machine.

The Hamble River, Luke and Co., Ltd., floats are single stepped hydroplanes of boat form, and their outline is shown by the sketch, which shows clearly the outer keel, which supports the step and protects the bottom proper when the machine is beached. These floats are built on alternate stringers of elm and spruce, held to shape by five cross-bulkheads, each of two thicknesses of cedar separated by canvas. On the frame so formed a skin of diagonal planking of cedar is laid, then a skin of canvas, well varnished, and finally a skin of longitudinal planks, which join on the stringers and are riveted thereto. The whole float is very light but strong, and should offer little head-resistance.

The floats on the Nieuport are of peculiar form, and are built on a pair of solid wooden beams running the whole length of the float and extending down to the centre stepped section of the float. Two heavy cross-bulkheads support the sides and bottom, which are of riveted cedar, the stepped portion being metal-cased.

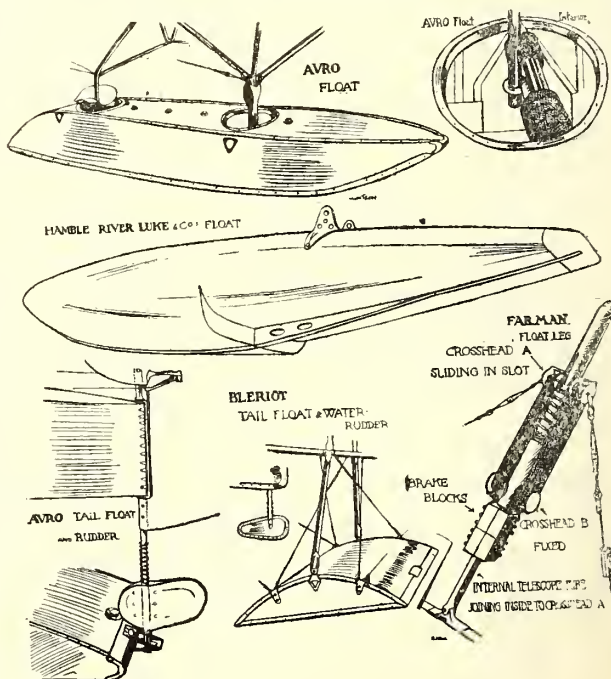
The general arrangement of the float base has been described and mildly criticised previously, and one learns that the steel tubes constituting the float base are heavily reinforced internally, and have hence much greater strength than their appearance indicated. It is worthy of note that the recent flight by Lieuts. de l'Escaille and Destrem from San Raphael to Corsica was made on identical machines. An alteration has lately been made in the bottom of the floats, which, instead of rounding-off at the stern to join the sides, is now carried out and joins each side at right-angles, thus sitting on the surface of the water instead of sinking in.

The body of the Perry-Beadle machine presents a striking appearance, owing to the beauty of finish of the sewn skin and to the grace of its outline. The boat-form bow and the high

freeboard forward will commend itself to those who have any experience of floats in rough water, while the whole float must be excellent in regard to air-resistance.

The twin floats of the Avro water-machine are unstepped pontoons of quite small beam, built of three-ply wood on ash and spruce frames, and divided into numerous watertight compartments by three-ply bulkheads. The whole float is cased in doped fabric. The form of float and the details of the springing device are clearly indicated in the sketches thereof, one of which shows the neat sprung tail-float and water-rudder fitting.

The Sopwith "Bat-boat" hull is an imposing structure, whose outlines can be seen in the drawing. The hull is built in the Sopwith works in regular boatbuilding fashion, on a central keel, with ribs and longitudinal stringers. The bottom is planked with double diagonal strips and an outer longitudinal layer, and the sides with one diagonal and one longitudinal



*We supply as a Speciality***WIRE STRANDS and CORDS for AEROPLANES and AIRSHIPS**made of bright galvanised and tinned music wire of
high breaking strain.

TRADE MARK.

Felten & Guilleaume Carlswerk A. G. Mulheim-on-Rhine.**Agents for the United Kingdom:**For Insulated Wires and Cables for Electric Light and Transmission of Power, and for Rail Bonds;
R. R. TODD, 334, Birkbeck Bank Chambers, 329, High Holborn, London, W.C.For all other Manufactures: **W. F. DENNIS & CO.**, 49, Queen Victoria Street, London, E.C.
Telephone: 343 BANK. Telegraphic Address: "FREDENNIS, LONDON."**CRITCHETT
WELDING & ENGINEERING CO.,
WELDING & BRAZING
... SPECIALISTS ...****Aluminium Welding Guaranteed.**

Wire, Write or Phone

Tele. Address: Flexicablo, Watloo, London. Phone: 2424 City.

Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.**Aluminium Castings**

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality

ON ADMIRALTY AND WAR OFFICE LISTS

**R. W. COAN****219,
GOSWELL
ROAD,****LONDON, E.C.**Telegrams—
Krankases,
Isling,
London.Telephones—
3846 City
4879 Central.FOR EFFICIENCY
& RELIABILITY IN**Aero-Radiators**Send your enquiries to the
well-known radiator experts**The Motor Radiator Mfg. Co.,
Greet, Birmingham.**Telegrams - Nerleak, Birmingham.
Telephone - 455 Victoria, Birmingham.**OLYMPIA SHOW, STAND 36.****H. A. TURRILL**

Aeronautical Engineer and Automobile Representative

GWYDIR CHAMBERS,

104 High Holborn, London, W.C.AERONAUTICAL. — Balloons, Hangars, and Blackburn
Aeroplanes.AUTOMOBILE. — All makes of Cars supplied. Special
Delivery of ARROL-JOHNSTON and KRIT CARS.Telephones: **HOLBORN 1791, 4950.****PRACTICAL BOOKS on FLYING**Just Published. 180 Pages, with Diagrams. Large Crown 8vo.
3s. 6d. net.**THE AVIATION POCKET BOOK FOR 1914.**Containing, amongst other valuable information, the
Theory and Design of the Aeroplane, Structural Material,
Examples of Actual Machines, etc., etc. By R. BORLASE
MATTHEWS, A.M. I.C.E., M.I.E.E., Member of the Aero Club**THE ART OF AVIATION.**A Handbook upon Aeroplanes and their Engines, with
Notes upon Propellers. By R. W. A. BREWER, A.M. I.C.E.
M.I.M.E., etc. Popular Edition. 294 Pages. 95 Illustrations.
Demy 8vo, cloth. 5s. net.**AERIAL NAVIGATION.**A Practical Handbook on the Construction of Dirigible
Balloons, Aerostats, Aeroplanes and Airships. By F.
WALKER. Second Edition, thoroughly revised and enlarged.
176 Pages. 128 Illustrations. Crown 8vo, Cloth. 5s. net.**MODEL BALLOONS AND FLYING
MACHINES.**With a Short Account of the Progress of Aviation. By
J. H. ALEXANDER, M.B., A.I.E.E. 136 Pages. 46 Illustrations.
Crown 8vo, Cloth. 3s. 6d. net.**PRACTICAL AERONAUTICS.**An Understandable Presentation of interesting and
Essential Facts in Aeronautical Science. By CHARLES
B. HAYWARD, with Introduction by ORVILLE WRIGHT.
750 Pages. 310 Illustrations. 15s. net.**FLYING MACHINES OF TO-DAY.**By WM. DUANE ENNIS.
28 Pages. 123 Illustrations. Large crown 8vo, Cloth. 6s. net.The above books may be inspected on the "Aeroplane," Stand No. 110,
at Olympia.

Complete List, Post Free, from

London: CROSBY LOCKWOOD & SON,

7, Stationers' Hall Court, E.C. and 5, Broadway, Westminster, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

layer of cedar, the various layers being copper-riveted together, instead of being sewn, as in the earlier boats. One sketch shows how the load from the front struts, carrying the top planes and the engine bearers is distributed through a sort of tripod over a considerable length of the hull structure.

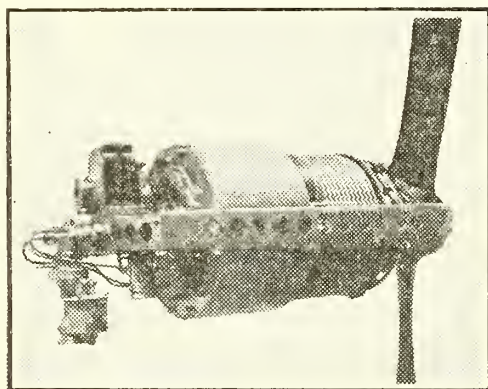
The floats of the Wight seaplane have already been described, and the sketch thereof will show clearly their main features. The framework on which these floats are built consists of three longitudinal girders of three-ply wood with elm longerons riveted to top and bottom, each extending from the bottom to the deck, one of these girders being central,

the two others forming the actual sides of the float.

Six cross-bulkheads of three-ply hold these three longitudinal members in place. Light elm stringers, spaced 3 in. apart, support the bottom and the deck, which are both of three-ply. The steel clips for the float-base are built onto the junction of the central girder and each of the bulkheads. The whole of the three-ply used is covered with doped fabric on both sides, completely protecting it against water, and six longitudinal rubbing strips on each float bottom protect the bottom and its fabric covering from shingle on which the machine may be beached.

The Statax Engine.

The report of this engine in last week's issue of *THE AEROPLANE* being based on a necessarily hurried inspection of the engine, needs further explanation, as it may give an erroneous impression of the motor. It suffers from the disadvantage of having several resemblances to certain engines which have been much talked of by their inventors, but which have not been heard of otherwise. The Statax motor, however, shows signs of really thoughtful design, and the difficulties to be overcome in this arrangement of motor have been attacked in an eminently practical way. The five cylinders, arranged parallel to the shaft, are each one piece of steel, with the valve-chambers integral therewith. Separate cooling fins in disc form embrace the whole five cylinders, which are supported at their bases on a cylinder of steel in which the motion is enclosed, and at their heads by a plate in one piece, with a steel chamber with which the inlet valves communicate. The gas for the carburettor is conveyed to this chamber by the hollow shaft. The statement that the inlet valves were apparently in the



The Statax Rotary Engine.

piston-heads—made last week—was incorrect. The piston-rods are universally jointed to the piston, and each rod is coupled to one ring through a further universal joint. This ring runs on a ball race and a ball thrust on the inclined disc referred to in the previous description, and the difficulty of the sliding couple here, therein mentioned, is thus evaded. The radius of the point of attachment of the piston-rods to this ring is slightly greater than that of the cylinder centres, thus the connecting-rod thrust is inwards, compensating for centrifugal force on the pistons.

None of the driving force rotating the cylinders is taken through the connecting-rods, but a set of steel guides between which run rollers on the rotating disc is provided for this purpose. The actual engine shown develops 44 b.h.p., weighs 176 lbs., and a petrol consumption of 8.5 ozs. per horse-power-hour is claimed. This motor has run for some thirty hours altogether and shows evidence that ample cooling is obtained. Having no oilway from crankcase to combustion-chamber via inlet valves the usual oil-slinging habits of the rotary motor are avoided, and great economy in this respect is secured. The compactness and consequent low head-resistance have already been referred to, and one understands that this actual motor is to be fitted to an aeroplane immediately after the Show.

The New R.Ae.C. Committee.

As this paper goes to press the result of the election of nine new members to the Committee of the Royal Aero Club is made known. The names of those elected are:—

The Marquess of Tullibardine, C.B., D.S.O.; Commander C. R. Samson, R.N.; Major J. D. B. Fulton, C.B., R.F.A.; Mr. T. O. M. Sopwith, Mr. Amsterdam Mortimer Singer; Mr. J. T. C. Moore Brabazon; Mr. G. B. Cockburn; Captain R. K. Bagnall-Wild, R.E.; and Major E. Lindsay Lloyd.

The selection is by no means a bad one. The Navy is represented. The Army has two officers of the Inspections Department on the Committee, which is a good thing, especially as Captain Bagnall-Wild represents the technical side of aeromotors. Major Lindsay Lloyd represents the aerodrome interests in general. One only regrets that the trade side of motors is still unrepresented, owing to the non-election of Mr. Fred May, and that Sir John Shelley, as representing dirigibles, and that Mr. Norman Clark Neill, a good all-round sportsman, failed to find seats.

Flying at Brooklands.

The first Sunday in spring at Brooklands condescended to be a spring Sunday, and all the aviators who had not succumbed to the Aero Show and the accompanying luncheons and dinners thereof rose to the occasion (metaphorically and actually), and did some very fine flying.

Mr. Marcus D. Manton, Mr. Hucks' understudy, took out one of the Hucks' Blériots and did some good work on it, his practice coming to a sudden end through a piston disintegrating in the air. Mr. Jack Alcock flew well on the Sunbeam Farman at high speeds, and before lunch Mr. Raynham took out the same machine and handled it as well as he does the Avros.

Mr. Lan Davies was also out early on his Avro biplane 50-h.p. Gnome. After lunch Mr. Merriam brought out a Bristol School biplane and made a short flight. The Martinsyde monoplane came out for an airing, but after the engine had been run retired for repairs to a broken exhaust valve. Herr Roempler brought out a brand new "D. F. W." biplane and made a short flight, the machine appearing to be very fast, and taxi-ing out to leeward at quite an alarming speed. Mr. Barnwell flew a Vickers' School biplane, while Mr. Alcock flew industriously on his powerful Farman, reaching a great height and performing every variety of virage known to pilots.

Things were once more damped by the rain, but after tea the weather cleared up for good, and everyone came out again, Mr. Barnwell (by permission of Vickers, Ltd.) flying the Martinsyde monoplane, 120 Austro-Daimler engine, and taking up several passengers, chasing and overhauling everyone else. Mr. Pixton joined the flock on a Sopwith tractor biplane, and added considerably to the entertainment. Quite a large crowd turned up during the afternoon, who provided a "full house" for the "Blue Bird" at teatime.

Photographs of Aeroplanes at Olympia.

All the photographs of the aeroplanes and engines at Olympia in this and the preceding issue have been taken by Mr. F. N. Birkett, 97, Percy Road, Shepherd's Bush, N.W. Whole-plate copies of any such photographs in this paper can be obtained, price 1s. 3d., unmounted, post free, from Mr. Birkett.

Flying at Hendon.

Mr. Willows' ill-luck is something phenomenal. On Monday, 16th, after holding his shed down through recent gales, the wind suddenly shifted, blew in at the front of the shed, blew the tail of the airship against the canvas wall, broke one of the planes, punctured the canvas, which ripped, and also punctured the envelope. Mr. Willows was obliged to deflate the balloon at once in order to save it from additional damage, and thus lost £60 worth of hydrogen, after which the major portion of the canvas of the shed was blown to ribbons, and it will have to be recovered before the machine can be reinflated. It is particularly hard luck as he had just got the machine into nice running order, and was ready to do passenger trips as soon as the weather became respectable.

On Tuesday of last week Mr. Hamel looped at Hendon, accompanied by Miss Hozier, sister-in-law of Mr. Winston Churchill. Later he flew to Windsor, where he gave an exhibition of looping before Prince and Princess Christian, and returned to Hendon in very fast time.

On Thursday it was Marcel Desoutter's benefit, and unfortunately the weather spoilt the gate. However, one hopes that the various contributory funds, such as those raised by selling paper models on the Cellon stand at Olympia, will all together raise a respectable sum. Despite the weather, the flying was excellent, and Mr. Hamel gave a fine exhibition of looping and fancy flying, once accompanied by Miss Trehawke Davies, who, one is glad to see, is looking very much better than when she last appeared at Hendon. On another occasion he took up Prince Paul of Servia, the first person of royal blood to loop, and by way of contrast he also flew with two small pigs, to show, as Mr. Moore-Brabazon did in 1910, that pigs can fly.

Messrs. Goodden (Caudron), Verrier ("shorthorn" Maurice Farman), Noel ("longhorn" Maurice Farman), Strange, Carr and Birenough (Grahame-Whites), and Marty (Blériot), all flew excellently. Mr. Hall, whose engine was obviously running very badly, gave one horrible qualms as he brought his Avro across the ground and went over the sheds low down. Obviously the engine needs a thorough tuning up. Lieut. Spenser Grey, R.N., arrived from a cross-country flight on the 100-h.p. Sopwith, so there was no lack of variety.

A rain-storm drove everyone to shelter in the middle of the afternoon, but afterwards there was a flat calm in which a speed handicap was flown, the competitors being Messrs. Noel, Marty, Strange, Birenough and Carr, finishing in that order.

On Saturday, after heavy rain in the morning, things brightened up a little, although the wind blew violently. The speed contest had to be abandoned in favour of a cross-country race to Bittacy Hill and back three times. The competitors were Messrs. Noel (M. Farman), Carr ("Lizzie"), Marty (Blériot), scratch, Strange and Birenough (box-kites).

Mr. Louis Noel was again first, for in spite of the high wind, he kept well on the course and finished far ahead. Mr. Carr was second on the Grahame-White tractor, while M. Marty was third. Mr. Strange was blown down at Mill Hill, fortunately without injury to himself or the machine. Mr. Birenough gave up after the first lap.

Other exhibition fliers were Mr. Cripps on a Grahame-White biplane; Mr. Hall, 50-h.p. Avro biplane; and Mr. Hamel on a Blériot, who took Miss Trehawke-Davies for a flight.

There was a very fine attendance at Hendon on Aero Show Sunday, the splendid weather doubtless being responsible. Mr. Gustav Hamel made three flights on his Morane-Saulnier, during which he looped the loop fifteen times, in addition to various "super-chutes." On one occasion he carried Baron de Gunzberg and looped twice.

Mr. Goodden went for height on his Caudron biplane, reaching the chilly altitude of 6,000 feet. Mr. Grahame-White took Mrs. Harry Tate for a passenger flight. Mr. Marty was on the Blériot with a passenger. M. Verrier evolved as usual with and without passengers. Mr. Carr flew "Lizzie." Mr. Baumann flew a Beatty-Wright biplane. Mr. J. L. Hall his Avro, while Messrs. Strange, Birenough, Morris, Howarth, and Osiepenko performed on Grahame-White biplanes—altogether a busy afternoon and a goodly crowd.

Some Notes on R.A.F. Design.

It has now become known that the elevator-planes of the Mark B.E.2 biplane on which the late Captain Downer was killed were found afterwards to be bent downwards. This puts an entirely different aspect on the accident. It is known that he was practising sharp spirals. It therefore seems probable that in pulling the lever back suddenly the elevator bent to the position in which it was afterwards found, in which case an uncontrollable dive would follow. The apparently sudden flattening out of the flight path of the machine which was observed by some eye-witnesses, might well, in such a case, be caused by the bursting of the wing as it flew back, owing to excessive head-resistance, especially if the wing was of the type without stretcher-bars, or compression tubes, between the spars. This would be exactly the opposite to the bursting of the wing being caused by a sudden flattening out. If the elevators bent, as is stated, they could not well have flattened the machine's path sufficiently to burst the wing.

The probability of this hypothesis being correct is increased by the fact that one of the Royal Aircraft Factory's pilots in testing certain new machines built in the Factory recently (the machines were, I am told, the new R.E. type with 120-h.p. Austro-Daimler engines) bent the elevators of several machines one after the other. At first the officials affirmed that the elevators were bent crooked before the machine started, but finally admitted that they were too light, and they have since been altered.

Additional confirmation is found in the fact that before Captain Downer's death new drawings had been sent out to contractors who are building B.E.s, and in these the rudders and elevators are of heavier gauge metal. I am told that the rudder-posts—or rudder-bars, as they appear to be called in the R.A.F.—in the older drawings were of 22-gauge tubing, and, as one who has had, all told, some 20 years' experience of steel tube and its ways, I believe that any man who specifies 22-gauge tube anywhere in an aeroplane where it is exposed to stresses is as much a danger to those who fly the machines as is a criminal lunatic at large.

No tube can be guaranteed true to a single gauge throughout a length of even four or five feet, and so it is not advisable to use anything less than 18-gauge, except, say, for light tubes in tension, and even then it is not really safe.

It is not my custom to pay any attention to anonymous letters, but one, signed "Fairplay," received on Monday, states that Captain Downer's B.E. was built by one of the contracting firms and not by the Factory. I have no means of verifying or contradicting the statement, but, in any case, it does not absolve the R.A.F. from its guilt, for the maker, whether in the Factory or not, had to follow the instructions of the designer, who is the person with whom responsibility will rest. Nevertheless, it is probable that many more flying officers would have been killed if the contractors' work had not been, as a rule, superior to that of the R.A.F.

I learn also, that the unsupported rudder-posts of the Gnome-engined B.E.s are not wood-loaded throughout their length, but are merely plugged with wood at the top, thus giving a false idea of security; for though, as I said last week, wood-loading is a bad practice, it may, under certain circumstances, be just sufficient to prevent a tube from buckling.

Another astonishingly evil piece of R.A.F. design is in the attachment of the little sheet-steel levers to the elevator tubes and rudder-posts. The tubes themselves are, as stated, criminally light, and the metal of the levers is no heavier, yet the sole attachment is the acetylene welding of the edge of the sheet metal to this light tube, practically at right angles. Welding is bound to weaken still further the metal, which is already too weak, and, in any case, a direct pull at the base of a lever should never be allowed to depend on acetylene welding, an operation which is tricky work even in the most experienced hands, and if entrusted to a bad workman is the most dangerous and deceptive form of jointing ever invented. Acetylene welding is highly favoured by scientists because of its theoretical advantages, but practical men never trust it to work alone where its theoretical excellence may be spoiled by defects in the human element.—C. G. G.

The Week's Work.

Weather Report for Week Ending March 22nd.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Wind 50 m.p.h.	Gale	Wind 50 m.p.h.	Fair	Wind Wet	Wet Wind	Fine Show'y
Calshot ...	Very Wet	Very Wet	Wind Rain	Rain Wind	Wet a.m. Fine p.m.	Wind Shower	Fine
Eastchurch ...	Very Wet	Very Wet	Wind Rain	Rain Wind	Wet a.m. Fine p.m.	Wind Shower	Fine
Hendon ...	...	...	...	...	...	...	...
Leven ...	Bright	Rain	Fine	Wind	Gale Rain	Wind	---
Liverpool (W'loo) ...	...	...	...	...	...	...	---
Montrose ...	Gale	Gusty	Rain	Dull	Rain	Gale	---
Salisbury Plain ...	Full Gale	Windy	Windy	Windy	Windy	Windy	Windy
Shoreham ...	Wind	Wind	Gusty	Much Wind	c h Wind	Much Wind	Much Wind
Yarmouth ...	Gale Rain	Fine	Wind Rain	Storms	Stormy	Wind	---

School Reports.

Brooklands.—At VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Elsdon and Knight. Pupils with instructor on machine: Lts. Mansergh (2), Acland (2), and Leighton (2), Comte FitzJames (2), Mr. Murray (2), and Mr. Wilberforce (all biplanes). Machines in use: Two school biplanes.

At BRISTOL SCHOOL: Instructors during week: Messrs. Merriam and Halford. Pupils with instructor on machine: Sergt Deane, Mr. Racine Jacques. Machines in use: Two propeller biplanes. Nearly all pupils away, only flights made being trials of conditions.

Eastchurch.—On Sunday the Hon. Maurice Egerton three good flights on 50 h.p. Short, and Professor Huntington half hour on own "inherently stable" machine.

Hendon.—At GRAHAME-WHITE SCHOOL. Weather all the week very bad for pupils. Instructor: Mr. Lillywhite. Pupils with instructor on machine: Mr. M. G. Smiles (new pupil) and Mr. Robinson, rolling.

At HALL SCHOOL: Instructor during week: Mr. J. L. Hall. Pupils doing strts or rolling alone: Mr. Virgilio one straight. On Sat. Mr. Raynham out on Avro testing and adjusting machine. Sunday: Mr. J. L. Hall taking passengers on Avro.

Shoreham.—At PASILEY SCHOOL: Instructor during week: Mr. C. L. Pashley. Pupils with instructor on machine: Messrs. A. D. Gray, F. Hale, and Mortimer (new pupil). Machine in use: H. Farman type biplane. Mr. C. L. Pashley out in very strong wind on Tuesday, machine stationary at times. Mr. Phil Ray, the well-known comedian, has visited the school several times this week and has made numerous ascents.

Salisbury Plain (BRISTOL SCHOOL).—Instructors during week: Messrs. Busteed, Jullerot and Voigt. Pupils with instructor on machine: Lts Harman, Grange, Bonham-Carter, and Bolitho, and Messrs. Hay, Chambers and Ragbagliati. 8's or c's alone: Lt Fell, Mr. Stutt. Machines in use: Two propeller biplanes; one tractor biplane. Wednesday evening and Thursday morning all pupils taken up for two and three flights each.

C. G. SPENCER & SONS.

HIGHBURY GROVE, LONDON, N.

Manufacturers of

Aeroplanes, Airships, Balloons, and

Aeronautical Apparatus of every description,

Fabric, Propellers and Accessories.

Write for List.

Telegrams: "AERONAUT, LONDON."

Telephone: DALSTON 1893.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situation Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

PATENTS AND DESIGNS ACT, 1907.

NOTICE is hereby given that LEDUC, HEITZ & Co., of 22, Rue Perrier, Levallois Perret, Seine, France, Manufacturers, seek leave to amend the Specification of Letters Patent No. 6798 of 1912 granted to them for "Improvements in or relating to the treatment of fabrics for aeroplane wings, planes, balloons, and the like."

Particulars of the proposed amendment were set forth in the Illustrated Official Journal (Patents) issued on the 18th March, 1913.

Any person, or persons, may give notice of Opposition to the Amendment by leaving Patents Form No. 18 at the Patent Office, 25, Southampton Buildings, London, W.C., within one calendar month from the date of the said Journal.

W. TEMPLE FRANKS,
Comptroller-General.

Agents for Applicants:

H. GARDNER & SON, Chartered Patent Agents,
173-4-5, Fleet Street, London, E.C.

PATENTS.—How to Patent Inventions. Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

THE GRAHAME-WHITE SCHOOL OF FLYING possesses innumerable advantages. The tuition fees are low and inclusive; its instructors are highly capable, its machines most suitable, and the London Aerodrome at Hendon, where the School operates, is only 6½ miles from Marble Arch, and is within easy access from all parts. Prospective pupils should write for illustrated prospectus to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

W. H. EWEN SCHOOL OF FLYING, W. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

HALL SCHOOL OF FLYING.

Three types, BLERIOT MONOPLANES, AVRO and CAUDRON TRACTOR BIPLANES.

Thorough tuition for R.Ae.C. Certificate, flying and constructional, by qualified staff.

Fees, including breakages (if any):
SIXTY-ONE GUINEAS.

And kind of flying exhibitions arranged in any part of the world.

For full particulars, apply to HALL AVIATION CO., London Aerodrome, N.W.

PASHLEY BROTHERS, SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.

(See page 379.)

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.

PROPELLERS

BLACKBURN PROPELLERS. — Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—THE BLACKBURN AEROPLANE COMPANY, Leeds.

ENGINES

GREEN engine (second-hand) for sale; type 44NSC, four-cylinder, bore 105 mm., stroke 120 mm. Can be inspected at Napier Motor Works, Acton Vale.—Write SECRETARY, D. NAPIER & SON, LTD., Acton.

WANTED.—35 or 45 Anzani engine; must stand expert examination.—Write to Box 550, THE AEROPLANE, 166, Piccadilly, W.

MACHINES

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, THE AEROPLANE, 166 Piccadilly, W.

EMPLOYMENT.

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—WULFING, Aeronautical Engineer, 2, Barclay Road, Walham Green Station.

YOUNG man (22) seeks situation with aeroplane company; greatly interested in aviation since commencement; willing to learn and not afraid of work.—E. W., c/o E. CLARKE, 49, Boxley Road, Maidstone, Kent.

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—WM. MALLINSON AND SONS, LTD., 130, Hackney Road. Phone 4770 Wall.

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MONOPLANE, size 31 inches by 24 inches. Price 5s. Flights of nearly a ¼-mile have been obtained with this model. Set of parts, with drawings for building above model, 2s. 6d.—MURRAY, SON & CO., 387a, High Road, High Cross, Tottenham, N.

SENSATION AT OLYMPIA.—The greatest astonishment was expressed by the thousands who visited Olympia last week at the marvellous flying demonstrations given by the "Birmac" Model Aeroplane Co. with the famous "Birmac" models, over 700 of which were sold during the first five days. A beautiful little model is the No. 1, which flies over 300 yards and costs only 2s. 11d. complete in box safely packed in wooden crate, postage 3d. A strongly constructed rise-off-ground model, twin-propellers, chassis, wheels, complete 5s. 9d., packed in crate, postage 4d. Rubber, 1s. 2d. dozen yards; winders, 1s.; and all accessories for models.—THE "BIRMAC" MODEL AEROPLANE CO., 124, West Green Road, Tottenham, N.

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

Phone: Kingston 669.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our New Illustrated Models Catalogue now ready, Contains Sopwith Tractor, Deperdussin, Bleriot, Canard, Clarke Mono, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic 10d. per doz. yds

S. J. KEMP & Co.,

CROWN WORKS, Kingston-on-Thames.

(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)

Every Requisite for Model Aeroplanes. Send 1d. for List.

Models of Every Description built promptly.

Phone 321 Kingston.

Telegrams "Garage" Kingston-on-Thames.

EASTER FLYING AT HENDON

April 9 to 13. **SEVENTH LONDON AVIATION MEETING** (5 days)
(Opening of Hendon Summer Season)

TEN AIR RACES and "LOOPING THE LOOP"
BY GUSTAV HAMEL.

Thurs., April 16. **BIPLANE SPEED CONTEST.**

(Commencement of Weekly Air Races on Thursdays during the Summer Season)

Sat. next Mar. 28. **FIRST SPRING MEETING.** 16-mile Cross Country Race at 3.30 p.m.

ADMISSION 6d., 1s., and 2s. 6d. **MOTORS** 2s. 6d.
(Children Half Price) (Includes Chauffeur)

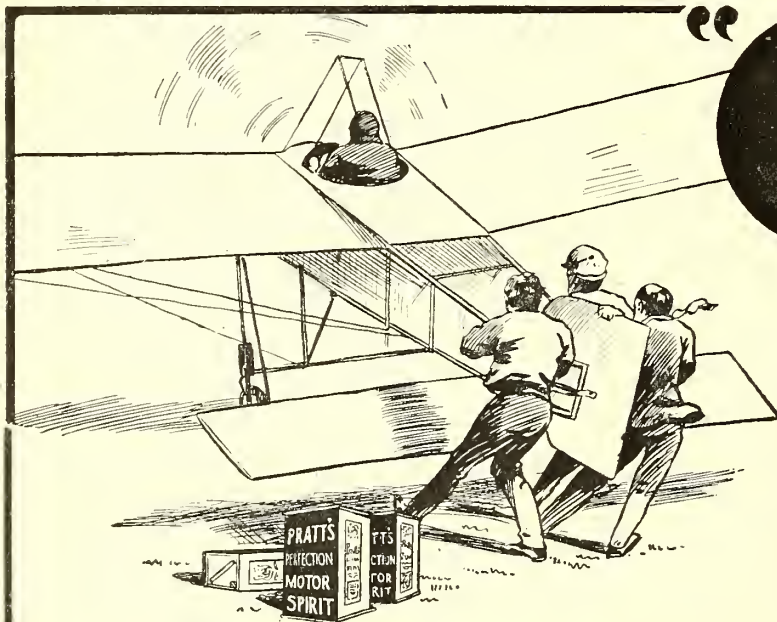
RACES EVERY SATURDAY at 3.30 p.m.
Special Exhibition and Passenger Flights, Every Thursday and Sunday afternoon, from 3 p.m. till dusk (weather permitting).
PASSENGER FLIGHTS DAILY FROM £2 2 0.

The London Aerodrome, Hendon

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: 'Phone: Kingsbury 120 (4 lines). Wires: "Volplane, Hyde, London."

LONDON: 166, Piccadilly, W. 'Phone: Mayfair 5955. Wires: "Claudigram, Piccy, London."



"Off!"

Mr. B. C. Hucks, the popular demonstrator of "Looping-the-Loop" and Upside-down Flying, and many other noted Airmen, use Pratt's Perfection Motor Spirit, because they are confident that its 100% Purity is responsible for the reliable working of the engine.



By Appointment

PRATT'S Perfection Motor Spirit

THE AEROPLANE," APRIL 2, 1914.

THE AEROPLANE

12
WEEKLY

Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, APRIL 2, 1914.

No. 14

THE FIRST BRITISH BIPLANE LOOPER.



Mr. J. E. B. Thornely, of Oxford, the first British aviator to loop on a biplane. Mr. Thornely, who is under 18 years of age, was a pupil of Mr. F. B. Fowler of the Eastbourne Aviation Company, Ltd., who has already turned out many good pilots. The machine used was a Henri Farman biplane reconstructed by the E.A.C., Ltd.

An Invitation to the Beatty School of Flying

■ ■ ■ ■ ■ ■ ■ ■

It is impossible in the short space of an advertisement to explain fully the advantages of my system of training.

Intending pupils should write for full particulars or should visit the school.

When the training of my pupils is completed, they have not merely taken their certificates, they are trained pilots.

Tuition on Handley Page Monoplane & Wright Biplanes
£75.

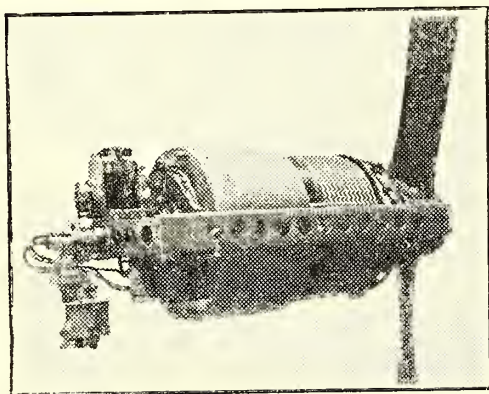
Special terms to Naval and Military Officers.

(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

A British Engine of an entirely new type.



STATAX (40 h.p.) MOTOR

STATAX

AVIATION MOTORS

40 h.p.	100 h.p.	80 h.p.
5 Cyl.	10 Cyl.	7 Cyl.

NO CRANK SHAFT. NO WOBBLE GEAR.

THE STATAX ENGINE COMPANY, LIMITED,
1, Quality Court, Chancery Lane, LONDON, W.C.

Telegrams: "Stataxab'e, London "

Telephone: 4860 Holborn.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all newsagents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " " "	3	3	6 " " " "	5	6
12 " " " "	6	6	12 " " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Vagaries of Fortune.

In this country the Army is unfortunately, though perhaps fortunately in some ways, entirely neglected by the daily Press and in Parliament, until someone wants to make political capital out of it. If the daily Press devoted as much attention to the movements and the sporting performances of the various units of the Army, as it does to the activities of suburban and provincial football clubs we should be able to pass a Universal Service Act inside five years. And, of all the unfortunate sections of our unfortunate Army, the Royal Flying Corps has the hardest luck.

Not only have several of its pilots lost their lives unnecessarily owing to the ignorance and obstinacy of civilians who have been jobbed into their positions and kept there through the weakness of an incompetent War Minister, but when those lives have been lost one finds they have been to a great extent wasted, for just now when one might have persuaded both Press and Parliament to take up the whole subject of the maladministration of the Royal Aircraft Factory, with its consequent crop of deaths among officers of the R.F.C. and its own employees, the Ulster Question arises, and, as it is a purely party question, it naturally eclipses every other interest. Consequently the troubles of the R.F.C. are thrust into the background, and the only attention the Army gets is in relation to the impulsive behaviour of certain officers, who, reading nothing but Conservative papers, unfortunately believe what they read therein.

No one can blame them. Since the lamented "Tribune" died one does not recall a Liberal paper that a gentleman could read with any pleasure, and the better class Conservative papers are so nicely written that a simple straightforward soldier is apt to forget that they lie as cheerfully on their own side as the Radical papers do on theirs, with the additional advantage that they are less apt to rant. Thus they give a spurious impression of impartial criticism which is responsible for the recent trouble at the Curragh. Also, one may remember that the society in which those officers move consists chiefly of well-to-do Eastern Irish Protestants, or West Britons, as they are called by the mere Irishry—very charming people, who, like the officers themselves, know much less about Ulster than they do about the latest London theatrical failure, as represented in Dublin by the London company exiled on tour in the provinces.

Perhaps, merely as illustrating the hard luck of the R.F.C. in being eclipsed by such an *affaire*, I may be permitted to relate a personal experience which puts the Ulster Question in a nutshell.

Somewhere about 1902 or '03—anyhow there was a Parliamentary election in progress—I was going from Dungannon Junction in County Tyrone to a little place called Cookstown, of somewhere about 2,000 to 3,000 inhabitants. In that constituency they say "You can poll all the dead men and you can poll all the men who never had a vote, but you can't tell which way the election is going till you know how the Plymouth Brethren have voted." There are about ten Plymouth Brethren in the constituency, and the rest are Catholics on one side, and assorted Protestants and fancy religions on the other, except that some few Protestants are Home Rulers. Consequently the Plymouth Brethren swing the election. The train in which

I was travelling was packed with Royal Irish Constabulary, in full fighting kit, rifles, ball cartridge and all, numbering about the equivalent of half a battalion of infantry, and very much better fighting material than any English infantry at that.

Out of curiosity I asked one of their District Inspectors what part of the country they came from. "We're all Roscommon men in this train," was the reply. "But," said I, "what on earth are they doing taking all the police out of a rebel county like Roscommon at an election time?" Sure, they're all rebels in Roscommon," said the D.I., "so there'll be no fightin'." Now perhaps you perceive why troops are wanted in Ulster.

There is bound to be fighting there whatever happens to the Home Rule Bill. If a compromise is effected there may be some rows in the South, so the Constabulary cannot all be spared for the North as they would be for an ordinary election. Also, it is well to remember, though the papers have carefully concealed the fact, that the South is full of Militiamen and Reservists, trained by British officers, with plenty of arms and ammunition in their depots, and that the regular troops may be needed in the North to protect the Ulster Volunteers against the Southern Militia. The troops are there as a hedge between the two parties, and a confoundedly uncomfortable time they will have, poor chaps. Some few officers who were in Liverpool and in the Welsh Valleys on strike duty know what the job is like.

However, all this is really by-the-way, and is merely mentioned to show how parish-pump politics may be distorted by party feeling till they seem to threaten the disruption of the Empire and eclipse things which are of real importance to Imperial Defence.

No paper has drawn attention to the fact that for the past week the Royal Flying Corps for practical purposes has not existed, and that if war had broken out our pilots would have had to turn out on machines which are officially considered unsafe, because practically all flying had been stopped by orders from the Department of Military Aeronautics. Apparently the orders embrace other machines than the factory-built B.E.s, which seems to show that the recent crop of accidents has destroyed all faith the Department of Military Aeronautics may have had in the Royal Aircraft Factory, both as to its ability to design and construct aeroplanes and its fitness to judge the products of other firms. It seems good policy that every machine belonging to the R.F.C. should have to be examined and passed by the new Inspections Department before permission is given for it to be used, and that all the R.A.F. work should have to be wiped out. I submit to my readers that the attitude now taken up by the Department of Military Aeronautics justifies every word that has ever been written in this paper against the methods and management of the Royal Aircraft Factory.

Further, the final and definite resignation of Colonel J. E. B. Seely from the War Office on Monday last is a full justification of all that has been written about that inept politician in this paper, and it will be remembered that his personal inefficiency and political dishonesty were exposed in these columns long before any other paper attacked him. It was not till the

long series of questions in the House of Commons, culminating last year, and prompted largely from this office, had thoroughly shown up Colonel Seely's true character, that the outside Press began to move at all. If this paper had been supported as it should have been, all might have been well a year ago, and the R.F.C. would not now be hampered in its work by untrustworthy machines, while money for its equipment was wasted by the Royal Aircraft Factory.

Nearly three years ago I met Colonel Seely at dinner at the House of Commons and then sized him up fairly well for what he is, a superficially clever politician without any deep ability. For a year after that I endeavoured to help his declared policy of aerial defence with useful suggestions—not my own, but those of men who know far more than I do about the Army and its needs—for, at any rate, he seemed to mean well. Then it became plain that he had not the brain to do the work before him; he could not even be an efficient politician, and the work to be done needed a strong man and a statesman. He sought advice from the very worst people possible concerned with aviation—instead of going to the good, solid workers, or to men whose knowledge and experience were dependable. He allowed himself to become the mere tool of the R.A.F. He prevaricated inconsistently but very regularly as to the state of the R.F.C. It became necessary to destroy him. His exposure over the R.F.C. machines last July shook his position so that he could not survive the Ulster affair. He is now "down and out." He departs, as he deserves, "unwept, unhonoured, and unsung."

A Specific Reply.

As was mentioned last week, it is not the custom in this paper to pay attention to anonymous letters, but the following is so typical of a certain class of anonymous critic, and so closely reflects the general tone of the R.A.F. employees that it is worth reproducing, and answering specifically. Here is the letter:—

"I am writing to express my utter amazement as regards the biased criticism which you pour forth week after week in *THE AEROPLANE* against the B.E.s, F.E.s and the R.A.F.

"For instance, in a recent issue of the aforementioned paper you discuss at length the weaknesses of the F.E. biplane (the first of its type built by the R.A.F.). There were two photos of that biplane showing the deep nacelle and how it was cut away at the rear, thus diminishing the side area behind the C.G. I should have nothing whatever to say against these remarks were it not that they are delivered against this machine only. I beg to enclose a drawing (from your paper) of the Vickers biplane (first type), showing the deep nacelle and how it is cut away at the rear. I have seen no criticism of this in your paper, although I have read nearly every issue of it, including those at the time when this machine was first described. The reason for this is, I presume, because it was built by a 'private firm,' and was therefore beyond reproach.

"My second point is as regards the position of the rudder on the machine on which Lieut. Allen and Mr. Burroughs met their deaths a few days ago. I have never read in your paper the same kind of 'criticism' regarding, say, the first Bristol tractor biplane, a picture of which I enclose.

"Lastly, you are always emphasising the 'fact' that these murderous F.E.s and B.E.s have killed about five of your friends. When you come to think that these five have been killed on three different experiments of the R.A.F., and also take into consideration the number of miles flown by them, and then place this beside the record, say, of that admittedly excellent machine the Martinsyde, showing three deaths to some of the best pilots, to one type of machine (it has only been modified since), you will see that it is not only R.A.F. machines which kill your friends; and this is only one other example. Criticise both alike.

"(Signed) AN UNBIASED CRITIC.

"P.S.—I read with particular interest last week in one of your contemporaries a denial by Mr. S. C. Winfield Smith (one of the pilots of the F.E.) of the alleged statement concerning him, 'If ever I get this beast home I shall go to church for a week.'—*That'll Do*.

"P.P.S.—I notice in my paper to-night that another of your 'friends' has been killed. But this time not by an R.A.F. machine, but a Maurice Farman."

Now to reply to each point *serialim*.—As regards the Vickers biplane. The drawing shows this firm's first experiment in this direction, which was exhibited at the Aero Show of 1913 and designed some months earlier. The reply is the very simple one that the machine was never flown. The firm found where most of the mistakes lay, and the next gun-carrier was absolutely different. Also, that was over a year ago, when designers were only beginning to think about side-surfaces, yet the scientists at the Royal Aircraft Factory had progressed no further than this in another twelve months, otherwise F.E.2 would not have been allowed to exist and Mr. Haynes would not have been killed. As to the second point. This critic sends a picture of the Bristol tractor biplane of late 1912 or early 1913, in which the rudder is stuck up on top of the fuselage. The reply is even simpler. The B.E.4, and all the R.A.F. machines of its type, had rudder-posts of about one inch diameter, of 20-gauge metal, with acetylene welds in them. The Bristol rudder-post was two inches in diameter of 16 gauge metal, and the joints were brazed steel sockets. It could scarcely have been broken if a crow-bar had been put inside it and used as a lever. Apart from the rudder, the machine had a very long deep fuselage. And this method of mounting rudders was given up by the Bristol Co. quite a long time ago.

On the third point: Captain Downer and Mr. Arthur were killed on B.E.2s, which were not experiments, but machines of a type which have been standardised in the R.F.C., through pressure from the R.A.F., to such an extent that that firm had almost succeeded in squeezing every other firm out of the Army contracts, with the result that progress in the design of land aeroplanes was practically stopped because independent designers found it was not worth their while to produce new types only to have their best points stolen by the R.A.F.

As to the deaths of Mr. Ridge, Mr. Haynes, Captain Allen and Mr. Burroughs, they were all killed on machines which were known to be dangerous. Further, F.E.2 and B.E.4 were, at the time of their smashes, hopelessly out of date, and should have been scrapped months before, for they were long past their usefulness as experiments. Also, F.E.2 and B.E.4 had in their composition details of constructional design and workmanship of which any little jobbing cycle repairer would have been ashamed.

This critic is equally unfortunate in his reference to the Martinsyde, for when Mr. Gilmour and Mr. Petre were killed the criticisms of the machine in this paper were as strong as any that have appeared concerning any type. The third death, that of Lieut. Kennedy, R.N., had nothing whatever to do with the machine. And since Mr. Petre's death the construction of the wings, fuselage, and chassis has been absolutely altered, so that there is nothing with which I personally, or anyone I know, can find fault.

In the letter my critic encloses also a cutting of the fish-tailed Blériot "sociable," pointing out the shallow fuselage and cocked-up rudder. Here again the reply is almost too easy. Mr. Hamel flew one of these at Hendon, and this paper stated at the time that he was afraid to glide on it, because it got out of control if the engine stopped. M. Perreyon flew one in the Military Competition of 1912, and this paper said it flew clumsily. It was not bought by the Army, and the tandem was. As has been remarked—at that time, over 18 months ago, no one knew much about side-area, but M. Blériot has built none of the type since 1912, so there is no need for further criticism.

As to the two postscripts—Mr. Smith has been offered space in which to reply to a whole statement, not merely to contradict a phrase which may have been wrong in the letter but correct in the spirit; and as to Mr. Treeby's death, the possibility of the position of the carburettor being a contributory cause was duly pointed out at the time.

Taking it all round, this critic, like most of the people who are supporters of the R.A.F., seems to have seized on exactly the worst possible points to support his argument.

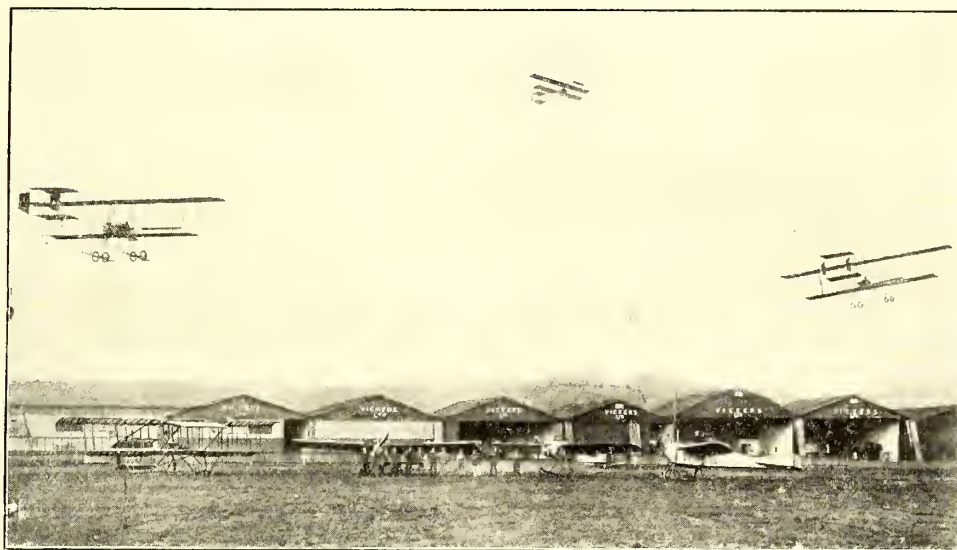
Finally, let me explain again that my attacks on the R.A.F. are directed solely against a pernicious system of allowing an establishment supported by public money to be held up by a



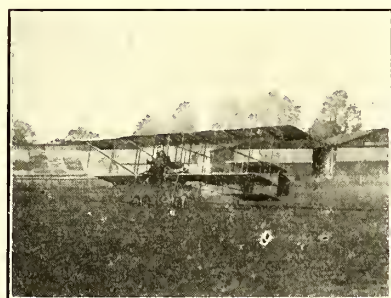
LEARN TO FLY



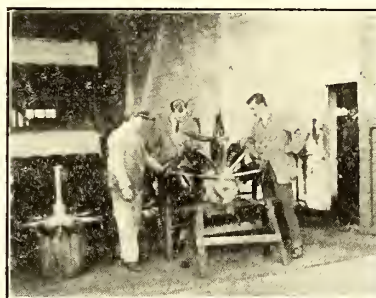
AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS Flying School, Brooklands



Instruction on the Biplane



Instructing Pupils in Aero Engines



Chief Pilot Barnwell

VICKERS, Limited,
AVIATION DEPARTMENT,
VICKERS HOUSE, BROADWAY,
WESTMINSTER, S.W.



Assistant Pilot Knight

Minister of State as an example to the world, to the detriment of more worthy establishments, when its products have been constantly proved to be a continual source of danger to those who use them.

During the past fortnight I have met for the first time several people who have worked in the R.A.F. in various capacities, and they all agree that, though there have been, and still are, good men in the employ of the R.A.F., those men are overshadowed by one little clique who exist simply by picking the brains of others and by hanging onto their positions by influence. It is the members of this little clique who have set the bad tone for which the R.A.F. understrappers have become notorious.

They are of the type of the person who just after asking a pilot which way his propeller turned, pooh-poohed a new design suggested by one of our most successful constructors, and said, "Ah! When you've had as much experience as we've had, you'll know these things without us having to tell you." The

same person was responsible for both these incidents, and then the R.A.F. turned out a bad imitation of the despised design, and nearly killed one of our best pilots.

The members of this clique know nothing themselves. They modify and spoil the work of the men who do know. They insult officers of the R.F.C. and civilian constructors alike, except when occasionally someone shows that he too has influence in high places, and then, in the school-boy phrase, they "suck up to him" in a most fulsome way. The R.A.F. might have been a great force for good. As it is, thanks to this clique, it has been a curse to the R.F.C. and to the progress of aviation alike. Those in authority in the Department of Military Aeronautics know better than I do who are in this clique, and they know the clique must go. The sooner it is broken up, and the sooner the R.A.F. is put under military control, the sooner we shall feel happy about the lives of the pilots of the R.F.C., and the sooner we shall see proper progress made in military aviation.—C. G. G.

Gordon-Bennett Eliminatories.

It is already announced that six machines have been entered to represent Great Britain in the Gordon-Bennett Race, these being entries by the Avro, Bristol, Sopwith, and Vickers firms, who have been assumed as entering one machine each, and two machines entered by the Cedric Lee Company. This means that eliminatory trials must be held to pick the three representatives, and the holding of such trials raises an interesting point. Suppose, for example, both the "dough-nuts" turn out to be faster than all the rest, will Great Britain be represented by both, and by the fastest of the other four, or will only be allowed to start, together with the two next fastest of the other four? Or, suppose the Bristol or Vickers firms each enter three machines for the eliminatories, and all three Bristols or all three Vickers prove faster than any of the others, will this country be represented by three Bristols or three Vickers, or must two of the fastest machines stand down to make room for the other makers' machines although they are slower?

It seems to the writer that, as the race is purely for the fastest machines, and is not a team race, or a competition for representative makes of aeroplanes, each firm should be allowed to send as many representatives as it likes, or can afford, for the eliminatories, and that the three fastest machines should represent this country, no matter whether they are of one, two,

or three makes. It would be well if the Committee of the Royal Aero Club would be quite specific on this point, so that the makers may know whether it is worth their while to build several specially fast racing machines.

Prohibited Areas.

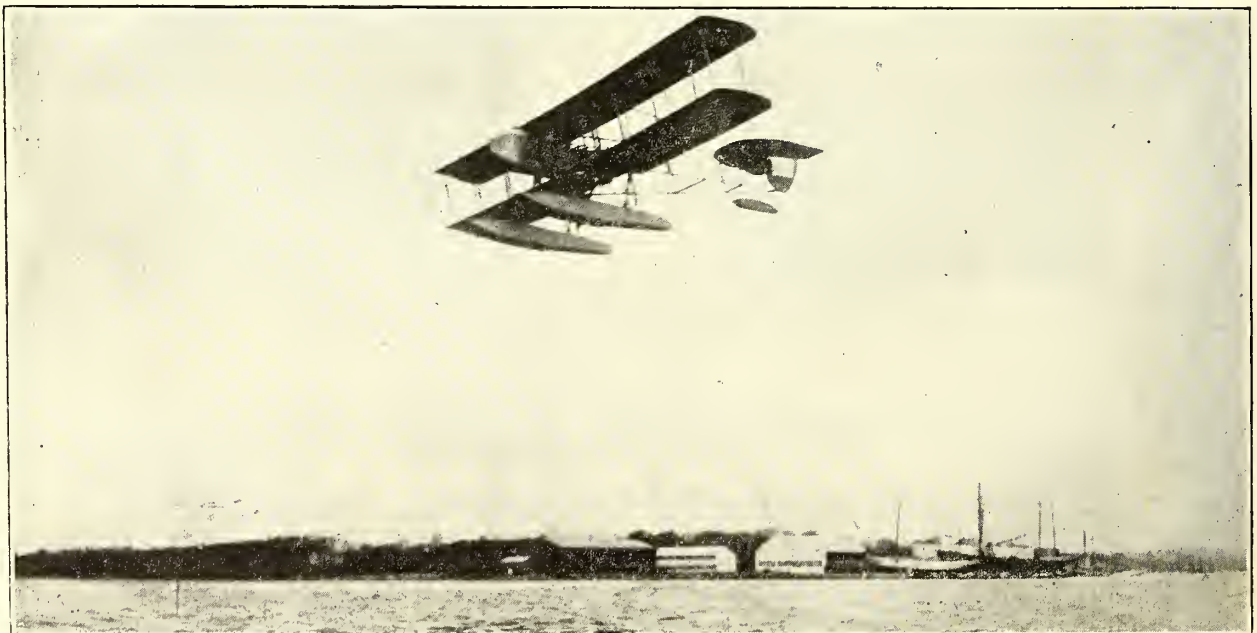
The Royal Aero Club has recently been in correspondence with the Home Office with reference to exemptions in Southampton Water, the Solent and Spithead, and a communication has been received by the Club intimating that on the recommendation of the Admiralty and the War Office, the Secretary of State will grant exemptions to allow, in certain circumstances, the navigation of seaplanes over part of the prohibited areas in Southampton Water, the Solent and Spithead.

These exemptions will apply to firms who now have, or propose to establish, works in the district of Southampton Water, the Solent and Spithead.

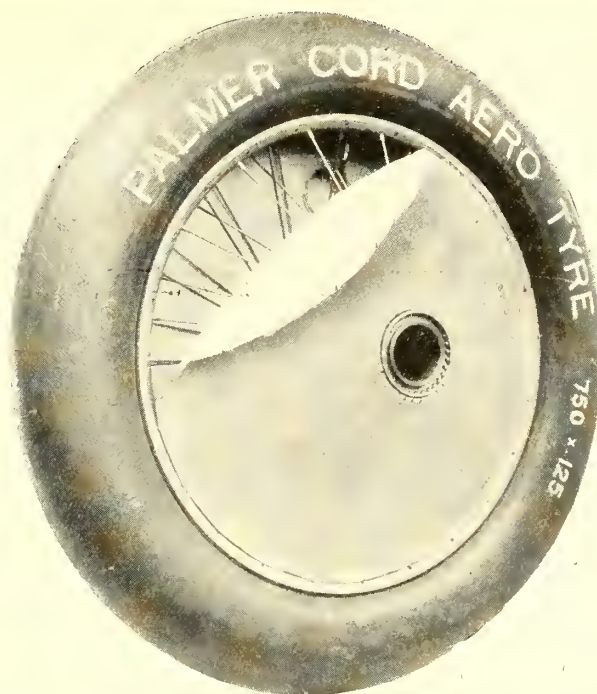
Applications for exemptions must be addressed to the Secretary, Royal Aero Club, 166, Piccadilly, London, W., from whom all particulars can be obtained.

A New Home for the S.M.M.T.

The building adjoining the R.A.C. has now been completed, and the Society of Motor Manufacturers and Traders, Ltd., have taken possession of their new offices. All communications must be addressed to 83, Pall Mall, S.W.



The Sopwith Biplane (100-h.p. Anzani) for the Greek Navy, being tested over the Hamble River by Mr. Pixton.



PALMER CORD AERO TYRES

- ❧ To those who follow Aviation, either as a pastime or a career, there was no more interesting accessory exhibit at the Aero Show than the collection of Palmer Cord Aero Tyres.
- ❧ Day after day crowds gathered to see the demonstrations of tyre making, and the ingenious methods of testing the load-carrying and lateral stability of Palmer Aero Tyres, which formed such an interesting feature of this Show.
- ❧ The tyres embody many novel and ingenious features, a remark which applies equally to the Palmer Aero Wheels and Quick Detachable Wind Shields, which were also on view.

The Palmer Tyre Ltd.

AVIATION DEPARTMENT,

119, 121 and 123, SHAFTESBURY AVENUE, LONDON, W.C.

Telegrams: "Tyricord, Westcent, London."

Telephone: Gerrard 1214 (4 lines).

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Aeronautics and the Naval Estimates.—(Concluded.)

BY W. E. de B. WHITTAKER.

This year, as the world knows, the Navy has taken over the entire charge of the airship section of the Royal Flying Corps. All those quaint and interesting balloons which afforded so much quiet and harmless amusement to a number of excellent officers who felt that aeroplanes were now too commonly used to supply that novelty without which no life is truly full have now left the army and have become the property of the "Handy Man" [Apologies to the Navy. The epithet is the author's, not mine.—ED.] whose energetic efforts will no doubt shortly bring them to an untimely but unregretted end.

In Mr. Churchill's printed statement it is announced officially that "Two of the leading ship-building firms, Messrs. Vickers and Armstrong's, have undertaken the construction of airships in this country, and have been given orders for four and three respectively." In his explanatory speech in the House of Commons on March 17th he added the further information that "We have built and building and ordered 15 airships of which 10 are large vessels or medium-sized vessels of over 45 miles an hour speed." Of this entire number one can take it that ten are yet to come—seven from English makers and the rest from abroad. The price of the new craft will probably average out at about £25,000 each at the very least, probably even about £35,000 more. But accepting the smaller figure we thus find that before the end of this year at least £250,000 is to be expended on the purchase of airships apart from any question of upkeep. Of this sum a certain amount must have been taken from the last Estimates to pay deposits and so on. When one considers the entire sum set aside for the purchase of aircraft of all kinds, one cannot but surmise that it is the definite intention of the First Lord, if he survives Ulster, to apply later in the financial year for Supplementary Estimates.

One knows that the First Lord has himself a great belief in the powers of "aeroplanes and seaplanes" (*en parenthèse*—is not this a rather clumsy manner of differentiating between two types of *aeroplanes*?) and it is, therefore, unlikely that any economy will be exercised in the purchase of such craft. It is, of course, always easy for an outsider to know more of the inner meaning of things than those who bring those events to

pass, yet it does seem as though some deliberate miscalculation had been made.

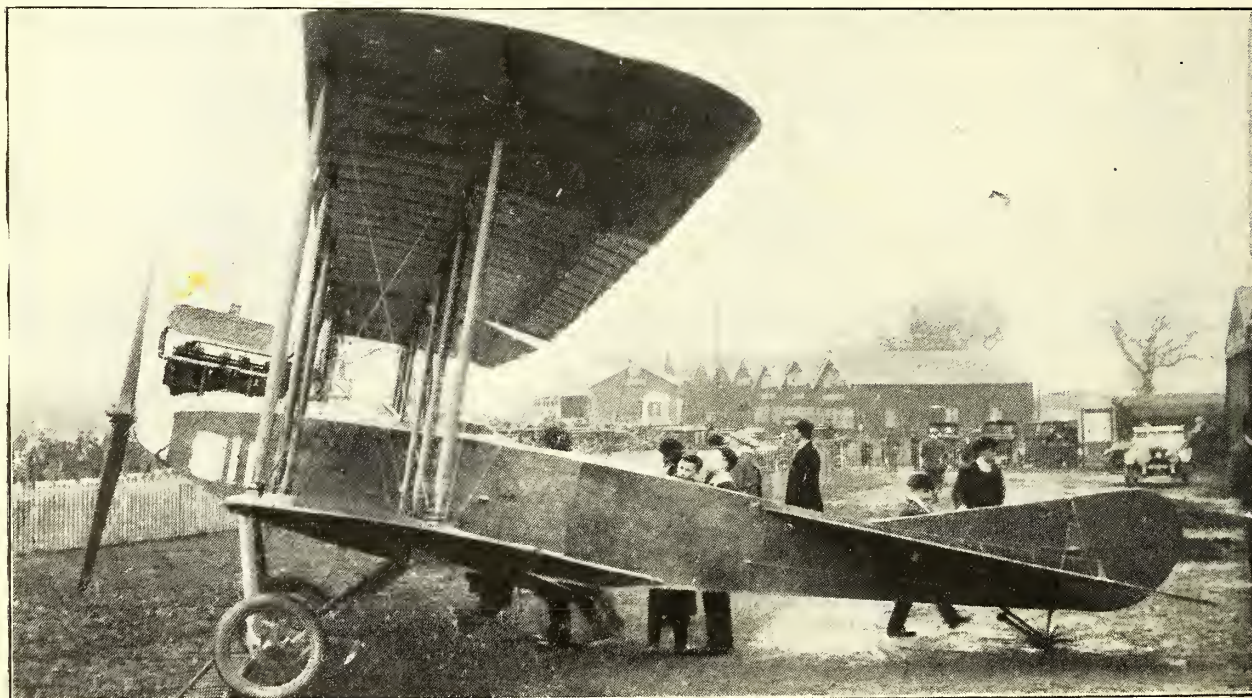
The Air Department of the Admiralty, which has done such excellent work since its foundation, and has even supplied an example to the War Office, has been largely increased during the past year. Thus the expenditure in Salaries, Wages and allowances has increased from £2,371 to £5,371, an increase of £3,000. I give the details:—

AIR DEPARTMENT.

	£
1 Director (Captain, R.N.)	950
1 Assistant-Director (Commander, R.N.)	750
1 Assistant (Commander, R.N.) (a) Full Pay; Special Allowance, 2s. 6d a day; Lodging Allowance, £50; Provision Allowance, £24; (or Lieutenant, R.N., £400 a year, or £430 a year if of over 10 years' seniority)	400
1 Engineer-Lieutenant, R.N. (Senior List), Full Pay; Consolidated Allowance, £150	452
1 Civilian Technical Assistant (b)	400
1 Second Division Clerk	203
(1) 2 Assistant Clerks	127
1 Draughtsman, borne on Yard Books (London Allowance, £25) (c) (d)	189
Provision for Additional Staff	1,900
	£5,371

- (a) Borne on the books of the "President."
- (b) Non-pensionable appointment; authorised for three years in the first instance.
- (c) Receives £40 London Allowance under old regulations.
- (d) Also receives Duty Pay of 6d. unless in receipt of an old rate of London Allowance.

To this, of course, must be added the expenses of the Department such as those incurred by officers when away on service. These items are not specified in detail, nor are they in any way subject to a limiting total. The expenses must necessarily vary so much that it is essential to place them under a general allowance for the entire Navy. All officers on



The Albatros Biplane (100 h.p. Mercédès) at Hendon. Note the combined water-tank and radiator over the engine, and the brake-claw between the wheels.

THE AIRCRAFT COMPANY LIMITED.

Hold the sole rights direct from the
Farman Brothers for the building of

HENRY & MAURICE FARMAN

Aeroplanes and Hydro-Aeroplanes

In GREAT BRITAIN and the OVERSEA DOMINIONS

Works and Flying Grounds :
HENDON.

Offices : 47, Victoria Street,
WESTMINSTER, S.W.

The "Bristol"
Flying Schools

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Admiralty duty receive a book of railway passes which when filled in give them the right of travelling free of charge, the necessary sums being debited to the Admiralty. This being the case, there is no reason why these charges should be divided amongst the various Departments concerned.

While on the subject of the Air Department it should be pointed out that the officers of that Department, while they are laid to greater expense through living in London, and within reach of many temptations and tribulations in the way of theatres and receptions, are worse paid than are Squadron Commanders who occupy less important posts. Squadron Commanders receive £600 a year and the usual allowances, and, as a rule, their commands are situated in such lonely and uncivilised places that there is no manner in which to spend the money reasonably. Again, it is rather an absurdity that some of the infants of the Navy who have by the introduction of aviation gained a little brief glory for themselves, should be far better paid than officers of twice their service and many times their experience. The salaries of the Air Department might well be increased to the general level of the R.F.C.

The duties of this Department are becoming increasingly important. Its officers combine the duties of a Selection Board with the responsibilities of an Inspection Office. Each new aeroplane has to be examined on its merits and purchases have to be made that proper support may be accorded to suitable firms. The safety of the naval pilots is in their hands and the reputation of the Naval Air Service is to a large extent dependent on their efforts. Not only is it essential that each officer shall have a practical knowledge of all branches of aeronautics, but it is equally necessary that many of them should be thoroughly efficient technically. It should not be forgotten finally that while many of those flying in the Naval Wing, R.F.C., are constantly in the public eye through the medium of the newspapers, the officers of the Air Department work in the gloom of unreported obscurity. Those whose work is not known are frequently more deserving of reward than those who have, shall we say, achieved notoriety in the "Daily Mail."

To return again to the printed and oral statements of Mr. Winston Churchill. In the former he speaks of the arrangements to bring in more civilians both as pilots and as mechanics, and in the latter he said . . . "We have 120 regular pilots and 20 officers who have taken their Aero Club instruction certificates. . . . There are now 125 officers and 500 men in the air service, and by the end of the year the number may reach 180 officers and 1,400 or 1,500 men. . . . It contains, and must contain, a large element of civilians, both officers and mechanics. . . . We cannot spare an unlimited number of naval officers and naval ratings."

The personnel of the Royal Flying Corps, Naval Wing, is

On Wing Stresses.

A correspondent, who prefers to be known as "Slide Rule," has been investigating the question of the stresses which may possibly be inflicted on the wings of an aeroplane when dived and suddenly flattened out. He having, fortunately, some practical acquaintance with the behaviour of aeroplanes in the air does not dispose of the question in the usual airy—"suppose the maximum speed of a machine when dived is 300 m.p.h. or so, and that it may be flattened out in so many feet which is a radius of turn of so and so, whence the centrifugal force will be 14 times or whatever you please times the weight of the machine"—way in which certain alleged scientists have dealt with the matter, but has recognised that a bigger pressure than that due to the maximum air speed on the planes at their maximum lifting angle is impossible.

His investigations are not yet complete, but he says that assuming a gliding angle of 1 in $6\frac{1}{2}$, the maximum possible speed is $2\frac{1}{2}$ times the normal speed corresponding to the gliding angle, or 150 m.p.h. for a 60 m.p.h. machine.

Assuming that the pilot flattens out so that he imposes a steady vertical load on the planes of $6\frac{1}{2}$, the weight of the machine, the machine will come to an absolute standstill in 1-1-3 secs. in a vertical distance of 140 ft. Or, otherwise, supposing that the pilot at this maximum speed pulls back his elevator till his angle of incidence is normal and holds it there steadily, the machine will then commit one complete

drawn from the active list of the Navy, the Royal Marines, the Royal Naval Reserve, and from civilian sources. Each civilian when admitted to the Naval Air Service is gazetted to the Royal Naval Reserve and his pay and allowances are taken under the R.N.R. Vote (Vote 7).

Under Vote 1, Wages, etc., there appears under the heading of Miscellaneous a clause, "Naval officers and men serving or under training in the Royal Flying Corps. Remuneration additional to Naval Pay. £34,500," an increase of £26,500 during the year. The ordinary Naval pay is borne under the usual votes. All Flying Pay (8s. a day) is under this increase.

The additional remuneration made to officers and men of the Royal Marines while serving in the Royal Flying Corps is this year £8,335, an increase of £6,335 during the year. The number of Marines employed in the Naval Air Service has not increased proportionately with that of the other branches of the Service. The Royal Marines have supplied some of the best pilots in the R.F.C., and their efficiency is beyond question. One would like to see more use made of the Royal Marines in so far as flying is concerned.

Under Royal Naval Reserve (Vote 7), Subhead A, will be found provision for Pay, etc., of 15 Officers and Men, R.N.R., in the Royal Flying Corps, £3,900. This, with the £200 allotted as Reserve pay of Officers, R.N., and R.M., more than doubles the provision made last year, that is £2,000.

There is about exhausts the known charges. There is yet fuel, victualling, clothing, and a score of other things to make mental reservations about. Whether the officers and men concerned are doing duty with the Royal Flying Corps or not they must be fed, clothed and warmed, and therefore the charge concerned is not necessarily to appear in the public accounts as against the Naval Air Service. Actually in the £860,000 set aside for aeronautics in the Navy during the coming year ample provision is made in the undetailed votes for all these customary expenses.

When one thinks of the great amount of experimenting to be done during the next year in connection with wireless telegraphy and its use on aircraft, with aerial gunnery, with the development of aircraft and with many other matters of importance, one is forced to the conclusion that in no way has sufficient provision been made for the work to be carried out.

Mr. Winston Churchill has the interests of Naval Aviation well at heart, and one may be sure that everything will be done, at least while he is at the Admiralty, to bring the Naval Air Service to the highest possible stage of efficiency. Every opportunity will be, and is, given to the British constructor to prove that he is capable of producing aeroplanes of at least as high efficiency as those built abroad. The events of the coming year will be watched with great interest by all.

loop at a radius of 140 ft. in about 3 seconds and will finish at its normal gliding speed, and the wings will be steadily subject to 6.25 times the normal load during the whole loop.

Now the second method of putting on 6 times the normal loading does not sound impossible, but under either of these conditions it should be remembered that the pilot himself would also be subject to an acceleration stress of $6\frac{1}{2}$ times his weight. Now, some time before a pilot, weighing say 140 lbs., became subject to a distributed load of say 800 lbs., he would be likely to suffer, to put it mildly, some discomfort, so that one may assume that he is likely to ease off his flattening out distinctly before he reaches the 14 times normal load condition, which has been referred to elsewhere.

"Slide Rule" announces that he hopes in time to obtain the complete equations which will give the actual possible limits of wing stress from such performances, and he hopes that a complete issue of *THE AEROPLANE* may then be available for their publication. The consequent complete checking of his figures by the staffs of the N.P.L. and the R.A.F. would probably keep them usefully employed for some months.

Sunbeams for Seaplanes.

One learns with interest that two of the new type 150-h.p. Sunbeam engines have been bought for use in the Seaplane Circuit of Britain, one of them having been purchased by the Sopwith Aviation Co., Ltd., and the other by A. V. Roe & Co., Ltd.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," March 25th, 1914:—

Admiralty, March 21st.—In accordance with the provisions of Order in Council of January 19th, 1886, Assistant Paymaster Edward Bertram Parker has been placed on the retired list. Dated March 17th, 1914.

War Office, March 24th.—Regular Forces.—Establishments.—Royal Flying Corps (Military Wing). Captain Herbert C. MacDonnell, the Royal Irish Regiment, is appointed to the Reserve. Dated March 9th, 1914.

NAVAL.

It is now made known definitely that the D.F.W. biplane at Brooklands has been purchased by the Admiralty. The machine was taken out at Brooklands on Wednesday of last week by Lieut. Collett, R.M.L.I., who performed on it in a manner which showed the possibilities of the machine. Herr Roempler, the firm's own pilot, had confined himself to steady flying round the aerodrome, as he evidently wished to avoid any breakage to the only machine of its kind in the country. The machine has been bought by the Admiralty purely as an experiment, and if further business is to be done with this make future machines will have to be much lighter.

The Bristol aeroplane repair wagon which was shown at Olympia has been purchased by the Admiralty for the use of the Naval Air Service. The intention is that, as the Navy uses a number of land machines, it may be better in the event of a machine being slightly damaged in a cross-country flight to send the workshop to the machine, instead of knocking the machine about still more in bringing it to the nearest workshop; also, in the event of a seaplane breaking down and being towed ashore some distance from its own station, it may be handier to send the wagon to it along the coast, instead of towing the derelict machine back to the station.

On Wednesday last week a serious accident occurred to Sopwith biplane 149, which had been flown to Eastchurch that morning by Lieut. Spenser Grey, R.N., accompanied by Engineer-Lieut. Aldwell, R.N. They were leaving Eastchurch in the afternoon to return to Hendon, and had reached a height of about 250 ft., when it was noticed that the machine made a sudden turn without banking and immediately commenced to spin round its own nose, dropping rapidly. A few feet from the ground the machine flattened out somewhat, but was too late to save a smash, and the whole machine crumpled up. Practically everything in the machine was broken, and it took over twenty minutes to extricate Mr. Grey from the wreck. He was still insensible when got out, but it was found that no bones were broken, though he was suffering from severe general concussion. Mr. Aldwell was quite conscious in spite of his skull being fractured across the forehead and a thigh being broken. After remaining in the sick bay at Eastchurch for two days the victims of the accident were transported to the Chatham Naval Hospital, where they now are. Although their condition is serious, it is not regarded as dangerous.

It has been impossible as yet to ascertain the cause of the accident, as the pilot is too badly shaken up to remember what happened. It scarcely seems possible that the spinning can have been caused by lack of surface aft, as the fuselage is fairly big right back to the rudder, and the weights are all well forward. Still, it would be well if the National Physical Laboratory would investigate the actual effect of the side surfaces on a scale model of the machine. It will be remembered that the cowl on this machine practically encloses the whole engine, the sides of the cowl being parallel, while the top and bottom taper, and may have some peculiar effect on the operation of the air streams. The gap and chord are very small in proportion to the span. Presumably, when the machine is flying straight, the gap and span do not affect one another, but it is possible that if the machine tried to turn without banking, the big span might have some effect on the small gap, especially in conjunction with the flat-sided cowl and the deep fuselage. The subject should be very carefully investigated, and the results should be published without the delay which usually accompanies all N.P.L. work.

On the other hand, it is quite possible that the prime cause of the accident may have been simply the pilot's foot slipping over the rudder-bar, as happened to Mr. Brock on his Blériot some months ago, or it may have been some misunderstanding about the dual control.

At Eastchurch much work has been done during the week. On Monday three Shorts, a Caudron, an Avro (100-h.p. Gnome), a Blériot (80-h.p. Le Rhone), and a Sopwith were out, and on Tuesday the three Shorts, a Henri Farman and a Caudron flew. On Wednesday the Short gun-carrier, three other Shorts, a Henri and a Maurice Farman were out. Lieut. Spenser Grey, R.N., and Eng.-Lieut. Aldwell, R.N., arrived from Hendon on Sopwith 149. Starting back on this machine, they met with the accident described elsewhere. Very shortly after this Lieut. Ireland, R.N., with a passenger, made a hasty landing on a Maurice Farman, due to engine failure, in a garden in Eastchurch Village, carrying away some telephone wires en route. Pilot and passenger were unhurt.

Leven was favoured with excellent flying weather during last week, and full advantage was taken of it by the pilots of the Naval Air Service. The unanimous opinion among the corps regarding Leven beach as a flying base is that no better could be got anywhere round the coast.

The staff at Leven now includes Major Gordon, R.M.L.I., Capt. Barnby, R.M.L.I., Lieuts. Oliver and Chambers, R.N., Fowler, R.N.R., and Ireland, R.N., the first-named being in command, and the last in charge of the wireless installation. There are also about twenty men.

On Monday, Lieut. Fowler and P.O. Hendry were testing wireless on Shorts Nos. 74 and 75, and all the officers at the base made short flights during the day. Major Gordon, R.M.L.I., Capt. Barnby, and Lieut. Oliver were out on Tuesday on Shorts 42 and 75. On Wednesday, Lieut. Oliver arrived on the Borel from Dundee, and on Thursday, Lieuts. Fowler and Oliver made several flights on Shorts 74, 75, and 77, and on Borel 86. On Saturday, Capt. Barnby, with Lieut. Chambers as passenger, flew Short No. 42, and Lieut. Oliver made a flight on the Borel.

The slipway between the hangars and the Tay has now been commenced at Dundee base. The only remaining machine here, the Borel, was flown to Leven on Wednesday by Lieut. Oliver, R.N. Shortly after 2 p.m. the machine was trolleyed to about 100 yards east of the sheds and launched. Lieut. Oliver, accompanied by A.M. Vitty, taxied up and down the Tay, but the Borel would not rise. He came back to the port and disembarked a quantity of petrol and made a second attempt to rise, which was unsuccessful. He then shed his passenger and the machine rose and flew to Leven.

The base at Carolina Port is now deserted save for the workmen at the slipway, and will be for six weeks while the manoeuvres last.

The first 100-h.p. Anzani Sopwith, which is being passed by the Naval Air Service for the Greek Navy, went through its trials satisfactorily last week, climbing 3,500 ft. in 15 mins., with the engine turning at 1,070 revs. per minute. The second machine of this type is now being erected for trials, and Mr. Pixton hopes to complete the tests this week. A larger elevator and rudder have been fitted, and the machine answers her control readily.

The 80 ft. span Sopwith biplane has now arrived at Hamble, and will proceed to Calshot to be erected.

MILITARY.

The following communiqué has been received:—

Diary of work done for week ending March 13th, 1914.—No. 2 Squadron, Montrose.—2,806 miles in all were flown by the pilots of this squadron during the week. Practice in reconnaissance work and in landing away from the aerodrome was continued.

No. 3 Squadron, Netheravon.—A considerable amount of reconnaissance work was carried out, including a flight by Lieut. Cholmondeley at 10 p.m. lasting three-quarters of an hour.

No. 4 Squadron, Netheravon.—The officer and N.C.O. pilots were flying daily throughout the week. Captain Shephard

flew at night over Salisbury Plain and tried landing by various lighting arrangements.

No. 5 Squadron, S. Farnborough.—Amongst other flights by the pilots of this squadron, Major Higgins flew the new S.E. single-seater to Netheravon.

No. 6 Squadron, S. Farnborough.—Various reconnaissance flights were made on B.E. and M.F. machines. Major Becke tried the new R.E. machines.

Flying Depot, S. Farnborough.—Experiments on various lines were continued, the machines used being B.E. and M. Farmans. The workshops and M.T. branch were busy throughout the week.

General News.—The Military Wing suffered a severe loss on Wednesday last by the deaths, as the result of an accident, of Captain C. R. W. Allen, Welsh Regiment, and Lieut. J. E. G. Burroughs, Wiltshire Regiment. Captain Allen was piloting a B.E., with Lieut. Burroughs as passenger, when, shortly after leaving the ground, the rudder became detached, thus causing the machine to get out of control and dive to the ground. Both officers were killed instantaneously. Captain Allen had been in the Military Wing since its formation in May, 1912, Lieut. Burroughs since April, 1913.

The War Office, March 20th, 1914.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending March 20th, 1914:—

No. 2 Squadron, Montrose.—In spite of the uniformly bad weather throughout the week, the pilots of A, B, and C flights covered 1,132 miles in all. Lieut. Harvey-Kelly arrived from Farnborough on the 12th, having had a rough journey.

No. 3 Squadron, Netheravon.—“C” flight (Blériots) was out most days during the week. The weather has been very bad on Salisbury Plain.

No. 4 Squadron, Netheravon.—The various officer and N.C.O. pilots were flying on B.E.s and M. Farmans whenever the weather permitted. A considerable amount of aerial photography was carried out.

No. 5 Squadron, S. Farnborough.—Flying was carried out by the pilots of A and B flights, but the weather also at Farnborough has been very bad.

No. 6 Squadron, S. Farnborough.—Flying was carried out by the pilots of the squadron, and numerous ascents were made by the Kite Detachment.

Flying Depot, S. Farnborough.—Various experiments were continued, and repair work on aircraft and mechanical transport was carried out in the workshops.

General News.—The General Officer Commanding-in-Chief, Southern Command, and many officers of the Royal Flying Corps and other units attended the funeral procession of the late Captain Allen and Lieut. Burroughs at Bulford on the

16th. Lieut. Burroughs' funeral took place at Bristol that afternoon, and Captain Allen's at Woodchester, near Stroud, the following day.

Besides all the officers and a large proportion of the N.C.O.s and men of No. 3 Squadron, to which the deceased officers belonged, there were present at the funeral Lieut.-Colonel F. H. Sykes and several other officers of the Royal Flying Corps, Captain Salmond representing the Secretary of State for War, representatives of the Welsh Regiment, the Wiltshire Regiment, and several Yeomanry and Territorial units.

The Mayor and Corporation of Bristol also attended.

War Office, March 24th, 1914.

Everything was ready for starting the week's flying on Monday morning when orders were received stopping flying until further notice. This order held until Thursday morning, when the weather prevented flying from being resumed. The idleness of the early part of the week was made up for on Friday, the total mileage for the day being 1,372. Lieut. Dawes on B.E. 226 visited Berwick. Capt. Waldron on B.E. 225 flew north to Elgin. Capt. Longcroft, with Sergt. Jillings as observer, made a long flight in the south in B.E. 232. Lieut. Harvey flew a Maurice Farman in a local flight, and Capt. Todd visited Aberdeen and district in B.E. 233. Lieut. Martyn arrived from Berwick on an apparently shaky numberless B.E., which has been making its way north for about three weeks. It is felt locally that it is a grave injustice to force officers to fly machines in such a condition, and one wonders why No. 2 Squadron should be permitted to continue flying B.E.s when the type is known to be dangerous in design and construction.

The number of machines at Montrose is to be further added to this week, when three to five are to be flown from Farnborough. There is ample accommodation for them now, as the sheds are about completed.

On Saturday morning, at 6.12 a.m., Lieut. Dawes started for a Montrose to Farnborough non-stop flight on B.E. 226. All went well until he reached Yorkshire, where he ran into fog, and was forced to descend near Mansfield, in Nottinghamshire.

AUSTRALIA.

Nothing has yet been done with the Australian Government's machines in the way of flying. Messrs. Harrison and Petre are tuning-up one of the Deperdussins at Alton, Victoria.

A Mr. Jones is occasionally flying at county towns in South Australia, and Mr. Hart has once more smashed his machine and has retired for repairs.

Mr. Hawker and his Sopwith “tabloid” have been creating quite a sensation in Australia, and are showing people what real flying is. On his arrival at Sydney he was accorded almost a royal reception. “Captain Penfeld” writes that on



A Short Seaplane (160-h.p. Gnome) taking the water for the first time at Leysdown. Mr. Gordon Bell as pilot, Mr. C. R. Fahey, passenger, and Mr. Oswald Short in the water on left of tail.

CONTRACTORS TO THE ADMIRALTY

**SHORT BROTHERS,
AEROPLANE WORKS
AND
FLYING GROUNDS—
EASTCHURCH, ISLE OF SHEPPEY.**

Telephone :—9, MINSTER-ON-SEA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

**THE
GNÔME ENGINE
COMPANY.**

(SOCIETE DES MOTEURS GNÔME.)

To whom all applications for Gnome
engines and spare parts should be made
for

Great Britain and the Oversea Dominions.

**THE GNÔME ENGINE COMPANY,
47, VICTORIA STREET, WESTMINSTER, S.W.**

KINDLY MENTION " THE AEROPLANE " WHEN CORRESPONDING WITH ADVERTISERS.

February 19th Mr. Hawker flew over the city, and on February 21st demonstrated at the Randwick racecourse, afterwards taking the Governor-General and his daughter for flights.

NEW ZEALAND.

On February 23rd Mr. Scotland flew his Caudron biplane from Invercargill to Gore, in New Zealand, a distance of 30 miles in 30 mins.

INDIA.

It is announced that on March 27th General Sir Beauchamp Duff, the new C-in-C. of the Indian Army, inspected the military flying school at Sitapur and made a flight on a Maurice Farman biplane piloted by Capt. Massy, Commandant of the school. This is the first intimation that has reached this country that the Indian Flying Corps is actually at work. It will be remembered that last year Capt. Massy and Lieuts. Reilly, Hoare and Newall went through the usual course of training at the Central Flying School, and on their return to India took with them certain B.E.s and Maurice Farmans.

FRANCE.

In the presence of an important French military commission, M. Bill tested a new armoured Farman biplane at Buc on March 27th. In spite of a bad wind, M. Bill climbed to 1,600 ft. in 9 mins. with a useful load of about 620 lbs.

The Municipality of Pau has presented to the French Army a military machine which carries the distressing appellation of "La Béarn et Pays de Basque." One trusts it will not stall the machine.

It is said that an aviation depot is to be formed at Guercif, in Morocco, where petrol and spare parts will be stored for the use of the French escadrille. The shed which was erected at Merada in 1912 is to be moved to Guercif.

It is thought probable that 6,000,000 francs will be voted for the French naval aerial service.

The Minister of Marine has promised to present a cup to the competitor making the fastest time from Marseilles to Monaco in the Monaco Rallye.

GERMANY.

The City of Hamburg has given 40,000 marks towards the expenses of the Prince Henry Circuit and 2,500 marks for a prize.

The Gotha airship-hangar is undergoing alterations to house the newest airships; it will be lengthened by 20 metres. At present Z. II is stationed there, as the military authorities are tenants of the shed for five years.

The recent gales nearly caused a disaster to the military cruiser Z. 5 last week as it was about to ascend from the shed at Johannisthal. A fierce gust caught it amidstships and pressed it downward till the right-hand propellers grazed the earth. The soldiers on the other side let go the ropes and rushed away; the vessel suddenly shot up and headed for the grand stand, dragging several of the soldiers on the other side up for a few yards. They managed to drop uninjured, and the mechanics, by starting the propellers, saved a collision, the roof of the stand being cleared by a bare yard.

The entries for the Prince Henry Circuit include 40 machines, 20 with military and 20 with civilian pilots.

The military section, all with 100-h.p. 6-cyl. Mercédès motors, reads: A, Monoplanes.—Lieut. Canter (Rumpler), Capt. V. Detten (Albatros), Lieut. Hautelmann (Albatros), Lieut. Joly (Gotha), Lieut. Kastner (Albatros), Lieut. Ladewig (Rumpler), Lieuts. Pfeiffer and Pretzell (both Albatros). B, Biplanes.—Lieuts. von Beaulieu, von Buttlar, Carganico, Schlemmer, von Thuna, Walz and Wentscher (all L.V.G.), Lieut. Bonde and Lieut. Von. Hiddesen (Albatros), Lieut. Geyer (Aviatik), Lieut. Emrich (Otto).

Civilians: A, Monoplanes.—Auslinger (100-h.p. Goedecker), Von Arnim (120-h.p. Stiploschek), Beck (100-h.p. Kondor), Freindt (120-h.p. Jeannin), Friedrich (100-h.p. Rumpler), Hofig (100-h.p. D.F.W.), Krumsiek (100-h.p. Hansa-Gotha), Paschen (110-h.p. Bristol), Schlegel (100-h.p. Gotha), Steffen (100-h.p. Etrich), Stiefvatter (120-h.p. "Bulldog" of Prince Siegmund of Prussia). B, Biplanes.—Hennig (80-h.p. Schwade), Laitsch (100-h.p. L.V.G.), Schanenburg (100-h.p. A.E.G.), Schuler (140-h.p. Ago), Schroeder (100-h.p. Sommer), Sommer (80-h.p. Sommer), V. Stoeffler (100-h.p. Aviatik), Thelen (75-h.p. Albatros), Weyl (140-h.p. Otto).

Barring two Gnomes, both in the Sommer biplanes, all the motors are German; two other rotary motors, however, will compete, the Schwade and Oberursel, built on the Gnome system, the last being fitted to Stoeffler's machine. New types are Prince Siegmund's "Bulldog," the Stiploschek monoplane, the A.E.G. biplane, the Schwade and Paschen. A number of the pilots, too, are new.—B.

The Zeppelin passenger-airship "Hansa," stationed at Potsdam, will be chartered by the German navy for a series of manœuvring tests in April. "Sachsen," at present in the service of the Marine Department, leaves Hamburg in May and returns to Saxony for its regular passenger work, and the "Viktoria Luise" is due in Baden-Baden for the season.

The new flying-boat built by the Albatros works for the navy was seen for the first time on the Mueggel Lake, near Berlin, on March 19th. The machine is a biplane with a 100-h.p. Mercédès motor, and, operated by Thelen, it achieved a speed of 100 kms. per hour. One of the passengers carried was Corvette-Captain Gygas, commander of the naval aviation station at Putzig.

RUSSIA.

It is reported from Petersburg that the new programme for Russia's military air fleet, at present under consideration, provides for 326 aeroplanes of usual type and ten Sikorsky aerial Dreadnoughts. Of the smaller machines, 100 are to be built by the Sikorsky firm, and the remainder by foreign makers, such as Farman, Deperdussin, Morane, and Voisin. Two will be ordered from the German firm of Rumpler and two from the English firm of Sopwith, and two will be constructed on the system of the Russian Lieutenant Kowanko. Besides these, two airships will be ordered in France and one in Russia. It is interesting to hear that two machines are to be ordered in England, but one learns that the recent announcements in the papers are the first the makers have heard of it.

It is said that the Russian Government has placed orders for 40 Deperdussins, 20 Morane-Saulniers, and 30 Farmans in France. The home orders include 100 small Sikorsky biplanes and 23 large ones.

Later figures indicate that 48 two-seater Deperdussins, 42 Morane "Parasols," 42 Farmans, and 12 Voisins are included amongst the French orders for the Russian army.

In the note last week on the subject of the two Sikorsky biplanes purchased by the Russian Government it was mentioned, on the authority of the French Press, that the price was only £2,000 per machine. It is now stated in another French paper that the price is £10,000 each. This is probably much nearer the mark, as the engines alone would cost somewhere about £3,000 for each machine, these being two Salmson engines of 200 h.p. each.

AUSTRIA.

Dissatisfaction is rife in the Austrian aviation corps to such an extent that twelve officers have applied to return to their troops, and several field-pilots are about to follow their example.

ITALY.

The Parseval from Campalto seems likely to be the first tenant of the big dirigible shed just erected at Iesi. She took a long practice trip last week around Venice, remaining in the air over 8 hours—quite her record, I believe.

The March weather was responsible for two more mishaps to officer-aviators last week. Gusts of wind caused the fall from lowish heights of Lieut. Sanità, commanding the Piacenza escadrille, and Lieut. Gori, who was testing a 1914 80-h.p. De Dion M. Farman for the aviation battalion at Mirafiori. Lieut. Sanità, of whose society accomplishments the Scribe has many pleasant memories, is sadly injured, though his more fortunate colleague got out of a bad accident lightly.

On March 25th a seaplane at Venice, piloted by Lieut. Bresciani, R.E., with Naval-Lieut. Miraglia on board, suffered from a stuck-up elevator—i.e., the organ jammed—and had to be brought down on to the sea anyhow, with, as a consequence, a comprehensive "smash-up," in which the occupants came off best.

Early in the same week Emilio Pensuti, now a Government tester at Vizzola, got three of the new Caproni monos built at those works (now also under the Government) through their acceptance trials. Several more, one is pleased to learn, are on

"PERRY-BEADLE"

BRITISH BUILT
FLYING BOATS
 AND
AEROPLANES.

~~~~~  
 Every class of Aeronautical  
 constructional work carried out.  
 Send us your enquiries for work  
 to be executed to your own  
 ideas. Our staff of highly  
 trained and technical designers  
 :: :: is at your disposal :: ::  
 ~~~~~

Offices and Works:

GOULD ROAD, TWICKENHAM.

Telephone—RICHMOND 1109.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
 is thoroughly equipped and
 Up-to-date.

THE

W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

WHITE and THOMPSON Ltd.

SOLE CONCESSIONAIRES

FOR THE

CURTISS

FLYING BOATS
and ENGINES

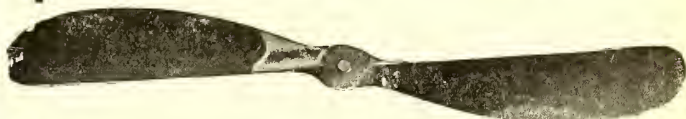
IN THE UNITED KINGDOM
 AND THE
 BRITISH COLONIES

MIDDLETON, BOGNOR, SUSSEX.

Telephone—
 48 Bognor

Telegrams—
 "Soaring," Bognor.

L. CHAUVIÈRE
INTEGRAL PROPELLER



HOLDS THE WORLD'S RECORDS FOR
 SPEED, HEIGHT, DISTANCE
 AND DURATION.

THE INTEGRAL PROPELLER CO., LTD.,
 307, EUSTON ROAD, N.W.

Works: 1b, ELTHORNE ROAD, UPPER HOLLOWAY, N.

Telegrams: "Avirop (Eusroad), London." Telephone: North 912.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

order. I enclose a photo of the latest model evolved by Signor Caproni, who, after so much pioneering and ill-fortune, is now making good. *O si sic omnes!*—T. S. HARVEY.

TURKEY.

A monument to the Turkish military pilots who have recently lost their lives in Syria is to be erected at Constantinople.

The inhabitants of Edrémid have subscribed to purchase an aeroplane to present to the Turkish aviation service, and have arranged that the machine be immediately dispatched and put at the disposal of Salim and Kémal Beys in order that they may continue their journey to Alexandria. In the meantime, Salim and Kémal Beys have returned to Constantinople by steamer, but will return to Edrémid and continue their flight.

M. Letort, who flew for the Turks in the Bulgarian War, is having difficulty in collecting his money. Representations are being made to the Turkish Government in the matter.

SWITZERLAND.

On March 29th, M. Poulet demonstrated at Berne on a Caudron biplane before a military Commission and a crowd of 40,000 persons, looping on several occasions.

ROUMANIA.

M. Dumitru Cernaianu sends some interesting information as to the arrangement of the Roumanian Flying Corps, which consists largely of Bristol machines. The Bristols are divided into three sections—namely, school machines, practice machines, and war machines. The school machines consist of three side-by-side 50-h.p. monoplanes and a "box-kite." The practice machines include 50-h.p. tandem biplanes, and the war machines are six tractor biplanes of the latest type.

The chief of the Bristol escadrille is Captain Popovici, who took his pilot's certificate on Salisbury Plain. This officer is a most skilful and energetic pilot. Within a month of the arrival of the first Bristol in Roumania, Captain Popovici flew a distance of 3,100 miles across country, making Bucharest his centre. He gives the highest praise to the Bristol machines.

The patriotic Roumanians also look on Bristol machines with favour, as M. Coanda, the designer, is a Roumanian.

The Bristol escadrille is stationed at Cotroceni, together with a Henri Farman escadrille, which consists of four new-type military biplanes and several school machines. It is said that the military authorities consider that the Bristols and Farmans fill all the needs of the Roumanian army, and that purchases will be confined to these two types.

The Royal family of Roumania takes the keenest interest in the flying and inspires the officers to yet more daring feats.

U.S.A.

On February 9th, Lieut. H. B. Post (since deceased) reached a height of 12,100 feet on a Wright hydro (probably a record

for a waterplane). Lieut. J. C. Carberry, of the American Army, on February 16th, reached 8,800 feet with a passenger on a Curtiss.

On February 14th Lieut. T. F. Dodd, on a Burgess tractor, 70-h.p. Renault, beat the American passenger record by flying from San Diego via La Jolla, and San Mateo Point, through Los Angeles to Burbank, finally returning to his starting point. The total distance was 224 miles, and the time was 4 hours 43 minutes.

Foreign Notes.

France.

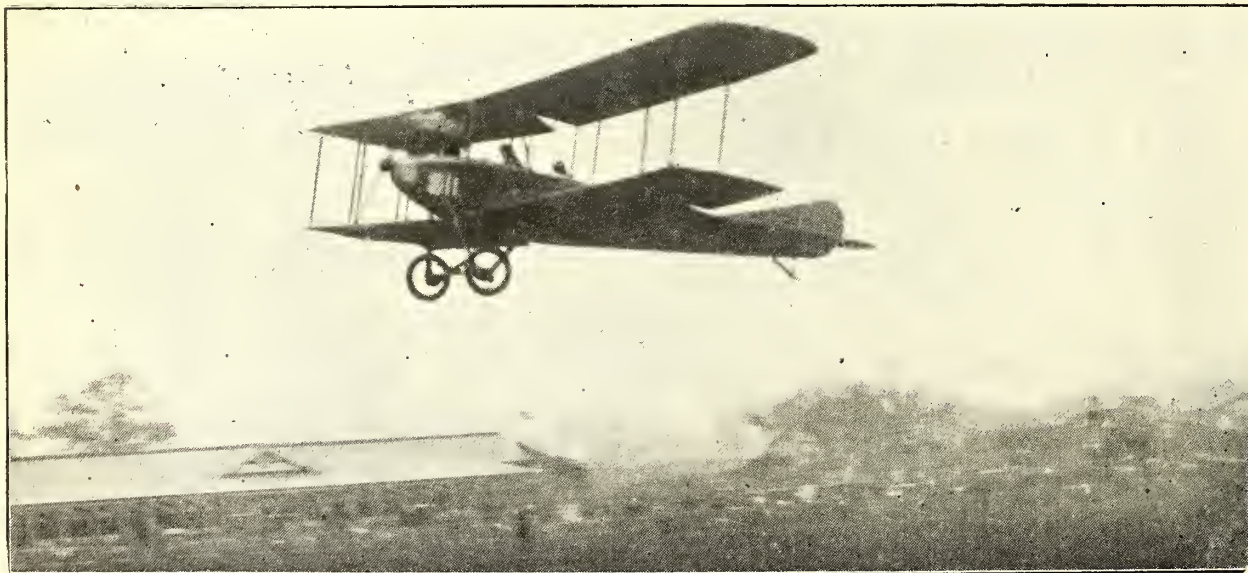
At the general meeting of the Aero Club of France, which was presided over by M. Henri Deutsch de la Meurthe, some interesting figures concerning French aviation were produced. During 1913, 13,040,000 recorded kilometres (8,150,000 miles) were flown, about $2\frac{1}{2}$ times as much as in the preceding year. The total duration was 133,800 hours, as against 39,000 hours in 1912; 23,600 cross-country flights were made as compared with 9,100. The passengers carried were 47,900 instead of 12,200. Yet the number of new pilots' certificates has decreased from 489 to 384. The output of machines has also decreased from 1,423 to 1,148 (this does not include the 146 waterplanes built in 1913). The year's output of engines was 2,240 and of propellers 14,000. The total horse-power of the engines built has increased from 89,000 h.p. to 228,863 h.p. No details were given of the year's fatalities.

Some discontent is being expressed in France at the arbitrary way in which the eliminatory tests for the Schneider Cup race have been advanced from April 18th to the 8th, thus clashing with the Rallyé, the finishing date of which is April 15th. The Aero Club de France is responsible.

On March 28th M. Garaix, carrying eight passengers, rose to 5,000 ft. at Chartres, thus creating a world's record. The ascent occupied 40 mins., and the descent 12 mins. The machine was the Schmitt biplane (160-h.p. Gnome), which is fitted with a variable incidence device.

The Paris "Aero" makes the interesting remark that the machine on which Mr. Carr looped the loop was a mere imitation of a Farman biplane, type 1911. One appreciates patriotic pride, but one questions whether M. Farman himself could discover the slightest resemblance between "Lizzie" and one of his ancient box-kites.

On March 26th M. Pequet tested a Morane-Saulnier monoplane (80-h.p. Gnome) at Villacoublay in the presence of the Russian aviators Wassilieff and Kouzminski. With a load of 340 lbs., the machine climbed to 1,600 ft. in $2\frac{1}{2}$ mins. Later, M. Pequet tested a "Parasol" (80-h.p. Gnome), which climbed to 1,600 ft. in 4 mins. 10 secs. with a load of 550 lbs.



The Albatros Biplane, piloted by Herr Thelen, getting off at Hendon on Saturday last.

M. Louis Noel may be interested to know that a namesake is flying the Albessard "aerobus" at La Vidamée, making "audacious" evolutions and "marvellous" landings.

M. Gilbert was somewhat seriously injured on March 24th while testing a Morane waterplane on the Seine. The machine was intended for the Monaco Rallye. It is said that he was blinded by oil and so flew into the water.

It is proposed to inaugurate an aerial postcard post in connection with the Monaco Rallye, postcards to be carried by the different aviators on their respective itineraries. A special stamp will be employed with a picture of M. Prévost's hydro Deperdussin on it.

M. Bidot has been testing a new speedy two-seater military-type Blériot with a coque fuselage at Buc. The timed speed works out at about 75 m.p.h. The machine climbed to 3,100 ft. in less than seven minutes. The pilot wound up the tests by looping twice.

It is evident from illustrations in the French aeronautical Press that the "parasol" type of monoplane is growing extremely popular—M. Robert Esnault Pelterie having now produced a machine of this type.

Germany.

During the year 1913 the Deutscher Luftfahrer Verband has granted 293 pilots' certificates, 114 having been gained on biplanes and 179 on monoplanes. It is interesting to note that 29 different makes of machine were employed in the making of this number of brevets, that Bristols account for 25 tickets and Wrights for 14, and that the 27 remaining machines all bear distinctively German names.

The committee of the D.L.V. which is charged with the administration of the National Fund has decided to discontinue the payment of tuition fees for young men desirous of becoming aviators, and to devote the whole of its available funds to the encouragement of further important records by German pilots.

Herr Schluter left the aerodrome at Fuhlsbüttel on March 27th with the intention of making a long flight on his monoplane. After having a very bad time, he was finally brought down by darkness at Dresden, after a flight of nine hours.

Lieut. Groener fractured his skull on March 28th at Johannisthal by allowing his head to come in violent contact with a running propeller.

Ascending with three passengers on an Albatros biplane, Herr Thelen last week set up a new world's height record of 3,700 metres (12,140 ft.), beating that held by Garaix with 3,250 metres. Thelen intends to attack all the passenger altitude records now standing in Garaix' name.

The Aviatik Works at Mulhouse desire it to be known that despite all reports to the contrary, they do not intend to give demonstrations of their machines in England at present.

Stiefvater, one of Germany's most industrious aviators, recently made his 6,000th ascent at Danzig, on a machine designed by Prince Siegmund of Prussia.

Friedrichshafen shows much activity in the aeroplane works. The new F.F. type No. 17 has been doing trial trips piloted by Schirrmeister, its graceful lines gaining general approval. Five of the pupils instructed at the F.F. Works have taken their brevets, the school being deservedly popular.

It is now said that there is no truth in the rumoured retirement of Viktor Stoeffler, who, on the contrary, is busy preparing for the coming season.

Herr Linnekogel achieved his heart's desire on March 24th, when he beat the late M. Perreyon's passenger height record of 4,960 metres. Again accompanied by Naval-Lieut. Plueschow, Linnekogel, on his 100-h.p. Rumpler mono, attained a height of 5,500 metres (17,900 ft.), as the cold, which stopped him last time, was less intense and was guarded against by wrapping up the motor. By the way, Linnekogel holds the Spanish altitude record with 2,800 metres, at Madrid.—B.

On March 27th Herr Hennig flew for 8 hrs. 10 mins. on a Schwade biplane fitted with a Stahlherz rotary motor, the flight being terminated by heavy rain.

Switzerland.

Swiss aviation is distinguished by having the highest percentage of deaths in proportion to the number of national aviators. The death rate reaches 21 per cent., far in excess of all other countries.—B.

Italy.

M. Chevallard has again given exhibition flights before members of the Italian Royal family, this time at Naples, before the Duke of Aosta. The performance included all M. Chevallard's well-known specialities, and at the close of the exhibition he made a journey by air to inspect the crater of Vesuvius, whereon a series of unique photographs of this object, viewed in a novel aspect, were obtained.

Spain.

It was reported in error recently that the fatal accident to the aviator Hanouille at San Sebastian took place on a Henri Farman machine. As a matter of fact, the machine was a Blériot. It appears that when the machine was pulled out of the water the aviator had disappeared, and it was seen that the straps that held him to the seat were broken, so that it would appear that he fell out of his seat when the machine turned over to make its loop, and was unable to bring it back again, though, curiously enough, there is no report of his having fallen out of the machine. His death occurred almost in the same place as Le Blon's four years ago. Hanouille was born in Belgium in January, 1893, and held the Belgian certificate No. 42, taken in France on July 9th, 1911.

Norway.

The City Council of Christiania has given £140 to the Northern Seaplane Race, that of the City Tönsberg £55 and has guaranteed £270, so that the seaplanes will arrive from Skagon on August 28th to Tönsberg and rest for one day, and then go to Christiania. Both the Danish and Norwegian navies will lay out torpedo defenders in the Skagerak.—H1.

Sweden.

Baron Cederström has returned to the "Scania-Vabis" Aircraft Factory, taking with him two new Henri Farman and three used Henri and Maurice Farman biplanes and seaplanes as well as a constructor from the Farman factory.—H1.

U. S. A.

The Secretary of the American Aeronautical Society writes:—

"The Aeronautical Society has urged the Panama-Pacific Exposition to alter its plans for a world race and substitute therefor a great American circuit, say, from coast to coast, perhaps via the Panama Canal (which could be flown entirely by flying boats), on the grounds that such a contest would ensure a good field of entrants, arouse greater enthusiasm, and be of lasting benefit to the industry in this country, which would be impossible under the proposed scheme. It would also make more likely foreign competitors, owing to the greatly lessened outlay involved in competing."

Among those opposed to the scheme are:—

Mr. Seely (Curtiss Co.), Messrs. Gilpatric, Peoli, and Patterson (Sloane Co.), Mr. Wynne (Aero Club of Pennsylvania), Mr. Mortimer Bates, Mr. Grover Loening (Wright Co.), Mr. Pelaggio (Moisant Co.), Mr. Preston (Goodyear), Mr. Bassall (Burgess Co.), Mr. Lambert (Aero Club of St. Louis), Mr. Richardson (Naval Constructor, U.S. Navy), Mr. Antony Jannis (Benoist Co.), Lt. Taliaferro (U.S. Army pilot), Mr. Verplanck (Curtiss boat-owner), Capt. Irving Chambers (U.S. Navy), Mr. Silas Christofferson (pilot and constructor), and many others.

During the Aero Show the Editor of THE AEROPLANE obtained the opinions of many leading British constructors and pilots on the proposed flight, and they all agreed that the game was not worth the candle. Most of them regarded the proposal simply as a cute dodge to obtain free publicity in Europe for the Panama Exhibition, and doubted the serious intention to put up the money for prizes.

Mr. Clifford L. Webster has been testing the new American-built Dunne waterplane at Marblehead, Mass. On March 19th, after preliminary "taxi-ing," he took out the machine and got off the water at the first attempt. Webster's opinion of the machine is as follows:—

"I feel as if I'd lost a job. In my old Wright machine the wind this morning would have kept me busy every minute balancing it. Though I am not familiar with the Burgess-Dunne as yet, it felt so steady that I let it steer and balance itself with the levers locked for quite a distance up Salem Harbour. There is no question in my mind but that the future of aviation depends upon the inherently stable machine."

The Affairs of the Royal Flying Corps in Parliament.

The portions of the debate on the Army Estimates on March 24th relating to Military Aviation were practically neglected by the Press, owing to the space occupied by Ulster. Yet nothing more damning than the exposures of Colonel Seely's maladministration has ever appeared. The chief points in the debate appear below:—

Mr. JOYNSON-HICKS: Hon. Members will recollect that on February 25th last the right hon. gentleman made a statement showing that everything was in good order.

With regard to airships for the Army and Navy, I think we are entitled to a little more explanation from the right hon. gentleman as to what he means, and as to the programme in regard to airships. He has told us that it has not been finally decided that we do not require airships in the Army. I wish an answer, yes or no, from whoever replies, whether the General Staff in working out plans do or do not include the use of airships by the Army.

The main question I wish to deal with to-day is that in relation to the squadrons of our aeroplane force. The right hon. gentleman very frankly told us: "We see no advantage in keeping the number of aeroplanes secret." I am very glad that he has taken that line. He added: "At any rate so far as the squadrons and Flying School are concerned. We have now 161." I take that to mean that we have 161 efficient aeroplanes.

There are, I believe, about thirty-six or thirty-seven machines in the Central Flying School. That leaves 125 machines out of the 161. I have been supplied with descriptions of the machines, and I propose to read them in order that the House may realise the condition of the squadrons within ten days of the right hon. gentleman's speech.

No. 2 Squadron is at Montrose. There were two machines which were in course of reconstruction, and 5 were in good flying order. B.E. 273 was condemned as unfit for flying, and B.E. 229 was in flying order. B.E. 217 was wrecked completely. There was one Maurice-Farman being reconstructed, and another Maurice-Farman which was old and only useful for instruction. It has been smashed very often, and is unfit to go to war. "That means"—this officer goes on to say—"all B.E.'s can only do 3 hours' non-stop flight, as petrol and oil capacity does not allow for more. B.E. 228 can only do 35 minutes, B.E. 218 can do 8 hours, but it has got double petrol tanks, and, therefore, cannot take a passenger. The two Maurice-Farmans are old, having been smashed up more than one can count. They are very sluggish and slow and can only do 48 miles an hour in dead calm. The average B.E. machine does 71 miles per hour new, but only 63 miles per hour when over two months old. All machines up here are fitted with 70-h.p. Renault 8-cylinder stationary engines, foreign make, and at present there are only three spare engines, which means very often a machine is laid up because of no spare engine. Broken down engines are invariably held up because we are unable to get spare parts at once. . . . At this moment there are actually ready for flying to-day five machines. Others have temporary engine trouble which could be got over in under 48 hours." That makes 7 machines out of 25 for Squadron No. 2.

Now as to Squadron No. 3 on Salisbury Plain, B.E. biplane 203, which is of the same type as that which had the bad accident ten days ago: "Machine completely down for overhauling three weeks ago, unserviceable." S.E. biplane No. 2: "An inquiry should be immediately held into the state of this machine before it is allowed to be touched. This is very urgent, as all here believe it to be unsafe." There are 6 machines in flying order; two more will be ready in two days, another is being overhauled. Altogether that squadron has 7 machines ready for instant work. Four could be got ready in seven days' time. That is eleven machines.

Then I come to Squadron No. 4 on Salisbury Plain, which is the only efficient squadron that the right hon. gentleman has got. There are 21 machines of which, roughly, 18 are ready for instant use. But of that number 15 are of the B.E. type, about which I shall have something to say.

I come to Squadron No. 5 at Farnborough, and this statement was made on March 12th, a fortnight after the right hon. gentleman's speech. There is one Henry Farman, one S.E., which is known among the officers as "the Bullet." "The machine is practically in an experimental stage. It was out of order during half the month, but was flown on several occasions." That machine has been moved into another squadron. The impression is that it is exceedingly dangerous, and the officers hope that the right hon. gentleman will not make any more use of it. There are 4 Sopwith machines, 3 of which are out of order. Altogether at that time we get in this squadron 2 Farmans, 3 Avros with 50-h.p. engines, which are totally out of date, and utterly unfit for war purposes, whatever use they may be for instructional purposes, 1 Henry Farman, 1 S.E., and 4 Sopwiths. The number of machines flyable on any day during February in this squadron at its highest was only 7 or 8, and it went as low as 1.

Then we have the No. 6 Squadron, which was only formed during the last few days since the right hon. gentleman made the speech. It contains 2 B.E.'s, No. 5 and No. 1. Both are trial machines. Nobody is allowed to fly them except the Squadron Commander, and he is ill in bed at the present time. Then there are 4 B.E.'s, 2 old Maurice-Farmans, and 1 new.

Now let us see how many efficient machines there were ten days ago: No. 2, 9; No. 3, 7; No. 4, 18; No. 5, 3; No. 6, 5; or about 42 machines, of which 26 were of the B.E. type.

This particular type the right hon. gentleman has told us over and over again are the best type of machines in the world. I would ask how many B.E.s are flying now? Has the right hon. gentleman not issued an order to the Flying Corps during the last 72 hours, that the B.E.s are not to be flown for the present. They are put under a ban, as the right hon. gentleman put monoplanes under a ban about a year ago after a certain accident. Four of the Sopwiths were also put under a ban. That leaves about fourteen or fifteen efficient machines in the five flying squadrons which are not under a ban. As one of the officers of the squadron said to me yesterday, "The Flying Corps is for the moment crushed out after the right hon. gentleman's bans." That means that if war were to break out to-morrow either the Flying Corps has got to go to war without any machines, or has to go to war with machines which the right hon. gentleman has placed under a ban.

The House realises that the B.E. is the type of machine on which Captain Allen and Lieutenant Burroughs were killed, and it is the machine which, according to the right hon. gentleman, is the best machine in the world. We would not complain if the right hon. gentleman had not boasted from time to time of the product of his Royal Aircraft Factory, and if he had been willing to admit that many manufacturers of aeroplanes could turn out machines half as good as he could. It was always those machines.

There is deep dissatisfaction among the officers of the Royal Flying Corps with regard to the products of the Royal Aircraft Factory. I do not refer to the gentleman connected with that factory; but there is something so wrong with the Aircraft Factory that your own officers have not confidence in its product. They have not confidence in the machines which that factory turns out, and they tell me that they cannot get repairs properly attended to.

The most serious question of all is as to the cause of these accidents which have taken place during the last few days. There was an accident to Mr. Haynes, at Wittering, when experimenting with machine F.E.2. (Mr. Joynton-Hicks here quoted two letters from Shoreham, one saying—

"The pilot openly stated that Mr. Haynes was afraid of going up in the machine. The machine rose very sluggishly and left the ground flying dangerously low.") On the following day the accident happened. The machine came down and this unfortunate man, Mr. Haynes, was killed.

The next machine to which I will call the attention of the House was that in which the accident occurred last year to Lieutenant Desmond Arthur. The accident occurred on the 25th May last, with B.E.205. On the 5th June, in this House,

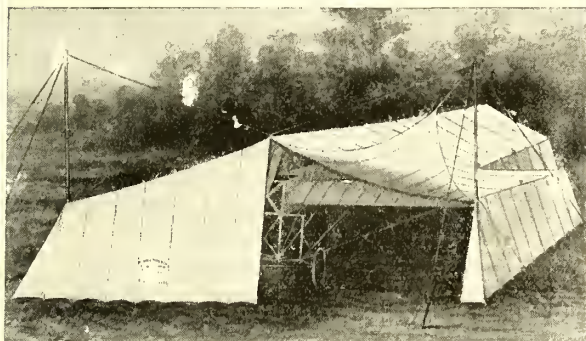
TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane is one of **PIGGOTT'S PATENT AEROPLANE TENTS**.

Pattern No. 3, suitable for a Bleriot Monoplane. Price in waterproof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.
Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

WONDERFUL HEALING

ZAM-BUK the Ever-Ready First Aid.



Zam-Buk has brought the treatment of skin affections and injuries to a point of perfection never before attained.

Nothing else known to Science has such a wonderful influence on a diseased or injured skin. Zam-Buk, indeed, reminds one of the rare and powerful herbal balsams of the Ancient Gladiators.

Zam-Buk is a rare and unique combination of the purest vegetable oils and herbal extracts, highly refined and concentrated.

When Zam-Buk is applied to the skin, poison and festering are checked, inflammation and irritation allayed, sore places disappear, and new healthy tissue is grown.

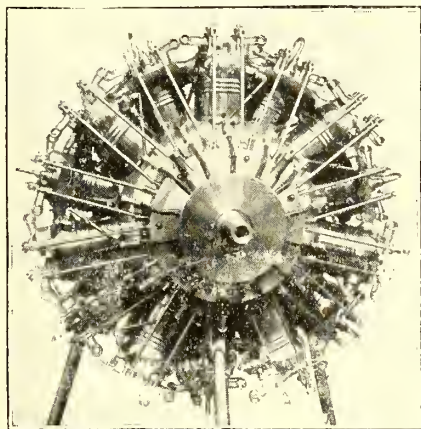
Leading airmen find Zam-Buk the quickest and surest healer for cuts, bruises, sores and knocks.

Zam-Buk

Zam-Buk is, in short, the Airman's best insurance against attacks of skin disease and the accidents that WILL happen, however carefully aeroplanes are handled.

Sold only in sealed boxes at 1/1½ and 2/9.

SALMSON AERO-ENGINES SYSTEM CANTON - UNNE.



Phone No.:
7 Stroud.

Tele. Address:
Humpidge,
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

London Office:—87, Victoria Street, S.W.

'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

HANGARS.

Any size built and fitted with
PERFECT SLIDING DOORS

obviating all the disadvantages of every present system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

GARAGES, CLUB HOUSES
and other buildings. Estimates Free

WIRE-WOVE ROOFING COMPANY,
108, Queen Victoria St., London, E.C.

"EMAILLITE"

THE PREMIER DOPE
British Manufactured

"AS TIGHT AS A DRUM."

As adopted by H.M. Government and
all the leading Manufacturers.

The **BRITISH EMAILLITE Co., Ltd.**
30 Regent Street, Piccadilly, S.W.

Phone, 280 Gerrard. Wire, Santochimo, London



I called attention to the rumours which were flying about Aldershot with regard to the condition of the repairs of that very machine. What did the right hon. gentleman do? Did he say he would make inquiry? No; he jumped up and overwhelmed me for having dared to mention those rumours in this House. What happened? A week after that the independent committee of the Royal Aero Club made investigations into this matter and declared that the death of that young officer was due to the faulty repair of the machine. The repair had been "so badly done that it could not possibly be regarded as the work of a conscientious and competent workman."

In that speech nine months ago I stated that at Salisbury Plain there were two B.E. aeroplanes which needed overhauling and were dangerous. Those were the two B.E. machines 203 and 204, and B.E. 204 was the machine in which Captain Allen and Lieutenant Burroughs were killed ten days ago.

Just before this accident there was an accident to Captain Downer with a similar type of machine, the wing of which broke. He was executing a difficult manoeuvre, but machines ought not to break when difficult manoeuvres are being executed. It ought to be sufficiently strong, and can be made sufficiently strong, I am advised by experts, for manoeuvres such as Captain Downer executed.

The officers of the Royal Flying Corps ask for an independent inquiry, and it is what they insist upon. I am not asking for a hostile vote; the matter is too serious to make party capital out of it. I am simply asking the right hon. gentleman to give us a full and impartial inquiry. We think

that the administration of the Royal Aircraft Factory, with its inefficient inspection, is not satisfactory.

Mr. SANDYS: On this question there is one point to which I would draw attention. That is the Inspection Department of the Flying Corps which was created last autumn. There is an impression in the country, amounting almost to a conviction in some cases, that everything possible has not been done to give the officers of the Royal Flying Corps the best possible equipment and organisation.

I cannot understand why there was no representative of that Department present to give evidence at that inquest (on Capt. Allen and Mr. Burroughs), which makes it seem as if that machine had not passed through the Inspection Department. I do hope that the question of what are the duties of these inspection officers is being carefully thought out, because I cannot help thinking that this recent accident may have occurred owing to divided responsibilities. [The Inspection Department does not come into the question at all. It is still only in process of formation and the machines at present in use by the R.F.C. had all been passed by the R.A.F. officials before the Inspections Department was in a position to begin its practical work.—ED. THE AEROPLANE.]

QUESTIONS IN THE HOUSE.

WRITTEN ANSWERS. 23 MARCH, 1914.

Mr. RAMSAY MACDONALD asked the Secretary for War whether he would circulate with the Votes, not later than Tuesday morning, a statement showing where the aeroplanes which have been the causes of fatal accidents were made?

Colonel SEELY submitted the following Statement showing the Fatal Accidents which have occurred in the Royal Aircraft Factory and Royal Flying Corps (Military Wing), with Pattern and Manufacturer of Aeroplane on which Accident occurred.

Date of Accident.	Names of Killed.	Pattern and Number of Aeroplane on which Accident Occurred.	Names of Manufacturers of Aeroplane on which Accident Occurred.	Remarks.
18 Aug., 1911	Mr. T. J. Ridge (Asst.-Supt. R.A.F.)	S.E. 1 Biplane (experimental machine no number allotted)	Royal Aircraft Factory	—
17 Sept., 1911	Lieut. R. A. Cammell	Valkyrie Monoplane (no number allotted)	The Aeronautical Syndicate	—
5 July, 1912	Capt. E. B. Loraine and Staff-Sergeant Wilson	Nieuport 70 Gnome Monoplane (no number allotted)	The Nieuport Aeroplane Company	—
6 Sept., 1912.....	Capt. P. Hamilton and Lieut. A. Wyness-Stuart	Deperdussin Monoplane 100 Gnome, No. 258	The Deperdussin Company	—
10 Sept., 1912	Lieut. C. A. Bettington and 2nd-Lieut. E. Hotchkiss	Bristol Monoplane 80 Gnome, No. 263	British and Colonial Aeroplane Company	—
28 April, 1913	Lieut. L. C. Rogers-Harrison	Cody Biplane No. 301	Mr. S. F. Cody	—
27 May, 1913	Lieut. D. L. Arthur. [This machine was of the	B.E. Biplane No. 205 standard B.E.2 type, and Howard Wright make.—	Royal Aircraft Factory ED. THE AEROPLANE.]	This was originally a Howard-Wright Biplane and was reconstructed at R.A.F. to B.E. type.
3 Oct., 1913	Major G. C. Merrick (Pupil at Central Flying School)	Short 50 Gnome Biplane No. 446	Messrs. Short Brothers	—
23 Feb., 1914	Mr. E. T. Haynes (Draughtsman, R.A.F.)	F.E. 2 (experimental machine, no number allotted)	Royal Aircraft Factory	—
10 Mar., 1914	Capt. C. P. Downer (Pupil at C.F.S.)	B.E. Biplane No. 453	Messrs. Vickers Limited	—
11 Mar., 1914	Capt. C. R. W. Allen and Lieut. J. E. G. Burroughs [This was the B.E.4,	B.E. Biplane No. 204 wholly of R.A.F. make, material.—ED. THE AEROPLANE.]	Royal Aircraft Factory	This was originally a Bristol Biplane and was reconstructed at R.A.F. to B.E. type.
19 Mar., 1914	Lieut. H. F. Treeby (Pupil at C.F.S.)	Maurice Farman Biplane No. 451	The Aircraft Manufacturing Company	—

[A gross injustice is done to British constructors by the "Remarks" added to the information concerning 204 and 205, presumably by R.A.F. officials who supplied the information. In neither of these "reconstructions" was a stick, a wire, or a shred of fabric of the Howard Wright or the Bristol biplane used. Even the engines were of different power and type. The striking points of the table are (1) Out of 12 fatal accidents 5 have been on machines designed by the R.A.F., whereas no other firm is accountable for more than one, although several of these firms have more machines in use by the R.F.C. than have the R.A.F. (2) Of 6 breakages in the air the R.A.F. are responsible for 3.—ED.]

ACCLES & POLLOCK, LIMITED. ALL SIZES, SECTIONS & GAUGES OF **STEEL TUBE** FOR **AEROPLANES.**

OLDBURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST.

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SAFETY.

BLERIOT-AERONAUTICS, Belfast Chambers, 156, REGENT STREET, LONDON, W.
Works: **BROOKLANDS, BYFLEET, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.
NORBERT CHEREAU, General Manager.

Telegrams—
"BLERIOPLAN, LONDON."

Telephone—
REGENT 3653.

CELLON TRANSPARENT SHEETS

ALL BRITISH DOPE

LTD.

IMMEDIATE DELIVERY.

CONTRACTORS TO H.M. GOVERNMENT.

17, OLD BROAD STREET, LONDON, E.C. Telegrams: "AJAWB LONDON." Telephone: 5359 London Wall.



NOTHING BETTER

A. V. ROE & CO., LTD., MANCHESTER

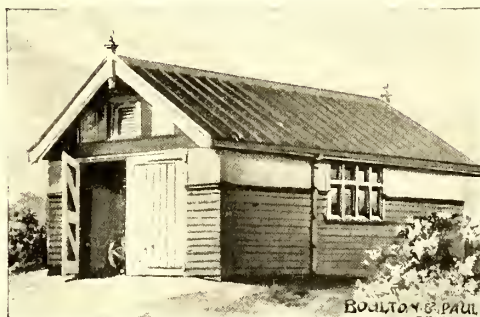
SPARS and all
BOOMS AEROPLANE
PARTS to
makers' own designs

Send us your Requirements and let us quote for you.

R. CATTLE, STRUTS
Machine Woodworking
to the Trade,
27 Wybert St.
Stanhope St., N.W. **SKIDS**

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN No. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR HOUSES, CYCLE HOUSES.

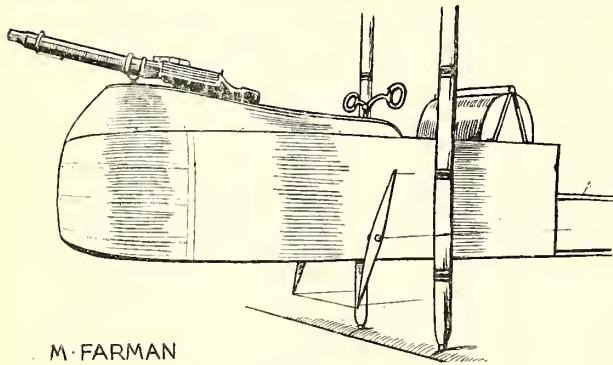
GLAZED ROOFS for **GARAGES.**

MOTOR SPIRIT HOUSES, PETROL SAFES.

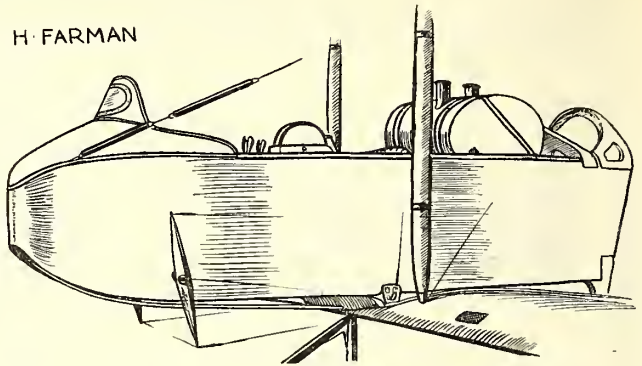
Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

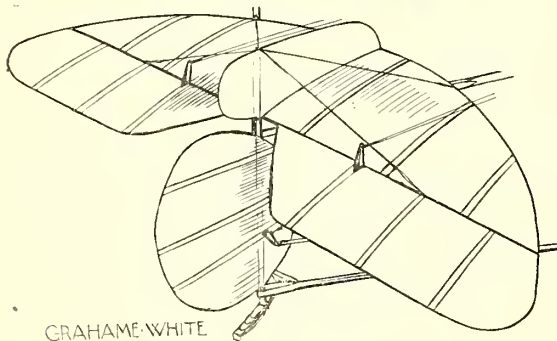
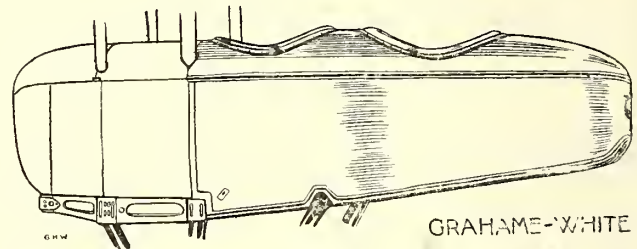
A Study in Side Areas.



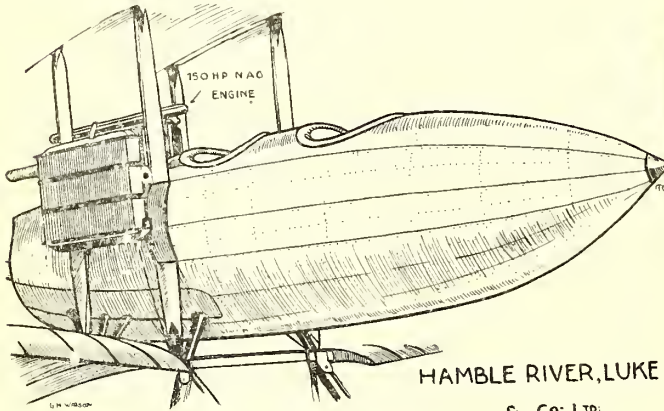
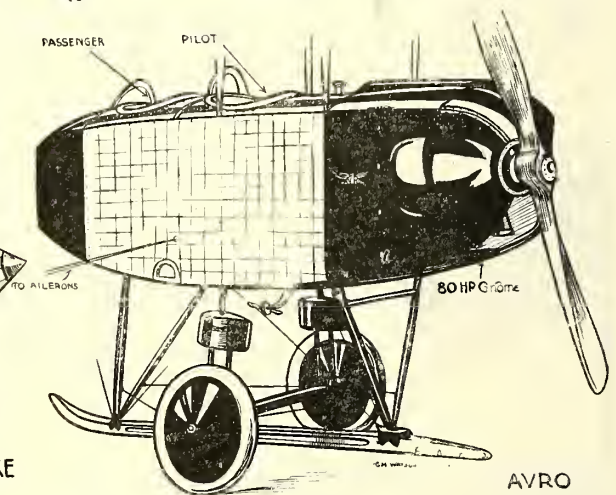
M. FARMAN



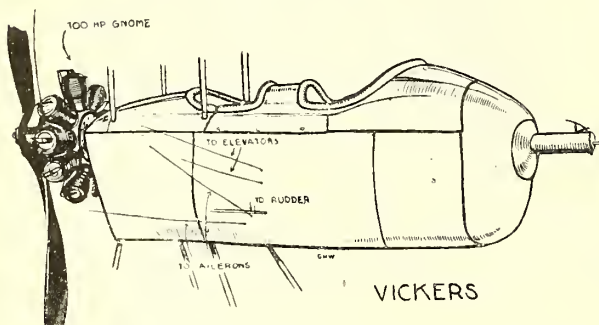
H. FARMAN

GRAHAME-WHITE
TAIL

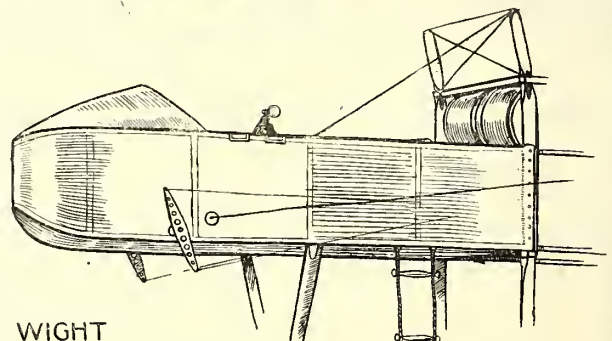
GRAHAME-WHITE

HAMBLE RIVER, LUKE
& CO. LTD.

AVRO



VICKERS



WIGHT

The various propeller biplanes at Olympia offered quite an interesting opportunity of studying the subject of side areas, which has at last begun to receive the attention which it has long deserved.

Taking the various machines one by one, the Henri and Maurice Farmans are very similar in regard to their nacelles,

both being rather low in the sides and projecting comparatively little forward of the main planes. Both have rather long tails, whose side resistance helps to balance that of the nacelle, and each of them has ample rudder surface. Messrs. Henri and Maurice Farman having had so much more experience in the building of this type of machine, which, from the point of

view of side areas presents probably the most difficult problem of any existing type, may be regarded as setting the standard in this matter, particularly since actual long experience shows that these machines do avoid trouble traceable to this cause.

The Grahame-White propeller biplane shows a marked difference from the Aircraft Co.'s machines in this respect. The amount of projecting side area appears very great, but the rounded form of the front of the nacelle should reduce the effect of this portion considerably, and the increasing depth of the body towards the rear should bring the centre of side pressure still farther back. None the less the impression gained by looking at the body is that the machine must suffer from excess of side area forward, and this has evidently been recognised by the designer, for a fixed tail fin has been fitted as well as a balanced rudder of very comforting proportions. One would feel rather more happy were the tail fin still larger.

However, there is so large a "factor of ignorance" as to the actual position of centres of side pressure on bodies of various forms that at present such criticism must be very largely regarded as only a personal impression. Still a large tail fin is simple to fit, and easier still to remove if found unnecessary, and the only ill effect possible from too large a fixed surface aft will be to make the machine somewhat insensitive to rudder control, which presents no serious danger if the early tests on the machine are carried out with reasonable care.

The seaplane shown by Hamble River, Luke and Co. seems to call for little criticism in this respect. The pointed nose and circular section of the nacelle, together with the appreciable increased side area presented at the rear by the motor, should suffice to keep the distribution of side pressure within safe limits, while the very large twin balanced rudders provide ample control in case of unexpected pushfulness on the part of the centre of side pressure.

The new "Avro" propeller machine on A. V. Roe and Co.'s stand appears open to some criticism in this respect. Though

the nacelle does not unduly project, it is very deep in the flank and has slab-sides, and the tail is not over-long. However, one understands that a large fixed tail fin is to be fitted before the machine is tested, which will be cut down if found unnecessarily big, and the rudder is of great size and balanced, so no apprehension on this score need be entertained in this case.

The "Wight" seaplane has a fairly shallow nacelle not projecting unduly forward, and the motor, tanks, and radiator present so large a side area aft as to keep the side pressure centre well back. Further, the floats, which are very long, project much behind the wings, and help in this respect. A tail of reasonable length and twin balanced rudders of ample size are provided.

One gathers that this type of machine has been subjected to the crucial test of the removal of the pilot's feet from the rudder-bar while on a turn of short radius, and has shown no tendency to decrease the radius of turn, but, on the contrary, has straightened out her own course.

The gun-carrying biplane which was shown on the stand of Vickers, Ltd., has a nacelle with reasonably little projection forward of the main planes, and with a rounded-off front end, a fairly long tail, and a large rudder. Also, the motor and rear of the nacelle come well aft, and the light motor does not bring the centre of gravity so far aft as one might expect.

These machines have shown good results in the air, and may, therefore, be taken to be reasonably proportioned in this respect. Still, here again, one would feel happier were a fixed tail-fin fitted, as there is some evidence tending to show that a machine may be in correct balance in regard to side area for turns of normal radius, but suddenly become dangerous owing to the unknown travel of the centre of pressure on extremely sharp turns. However, Vickers, Ltd., may be trusted to test their machines thoroughly, and, therefore, to make any modification in this respect which may show itself to be desirable.

The Royal Aero Club.

The annual general meeting of the Royal Aero Club was held on Tuesday, the 24th ult., at 166, Piccadilly, London, W. The Marquess of Tullibardine, the Chairman of the Club, presided, and there were about 40 Members present.

The Chairman of the Club said that from the Accounts for 1913, copies of which were in members' hands, they would see that the Club's finances were satisfactory. 174 new Members had been elected to the Club during the year. 363 Aviators' certificates were granted last year, making a total of 780 since March, 1910. Eight airship pilots' certificates were granted during the year. It was particularly gratifying to note that two of the World's records for passenger carrying were created in this country, upon British aeroplanes. He referred to the cross-country flight of 461 kilometres by Capt. C. A. H. Longcroft with a passenger on a Bristol B.E., August 19th last, a World's record at that time, and the duration flight of Louis Noel on a Grahame-White biplane, on October 2nd last, when nine passengers were carried for 19 mins. 47 secs.

The Chairman, referring to the Seaplane Circuit performance of Mr. Hawker on the Sopwith biplane, paid a tribute to the many fine performances of the Green motor, both in this and other big competitions in the air and on the test-bench.

The following British records were made during the year 1913:—Height: Pilot Alone—Capt. J. M. Salmond, December 13th, 1913, on a B.E. biplane, 13,140 ft. Pilot and One Passenger—H. G. Hawker, June 16th, 1913, on a Sopwith tractor biplane, 12,900 ft. Pilot and Two Passengers—H. G. Hawker, June 16th, 1913, on a Sopwith tractor biplane, 10,600 ft. Pilot and Three Passengers—H. G. Hawker, July 27th, 1913, on a Sopwith tractor biplane, 8,400 ft. Duration: Pilot and Four Passengers—Louis Noel, August 31st, on a Grahame-White biplane, 10 mins. 7 secs.

On the motion of the Chairman, seconded by Col. J. E. Capper, C.B., R.E., the Hon. President, Vice-Presidents, and Council for the ensuing year were unanimously elected, as follows:—

Hon. President: His Grace the Duke of Argyll, P.C., K.G., K.T., G.C.M.G., G.C.V.O.

Vice-Presidents: Field Marshal The Rt. Hon. Earl Roberts, K.G., K.P., V.C., G.C.B., O.M., G.C.S.I., G.C.I.E.

The Rt. Hon. Lord Northcliffe.

Council: S.A.I. Prince Roland Bonaparte (President F.A.I.), H.S.H. Prince Blucher von Wahlstatt, The Rt. Hon. The Earl of Hardwicke, The Rt. Hon. The Earl of Lonsdale, The Rt. Hon. Lord Howard de Walden, The Rt. Hon. Lord Kinnaid, F.R.G.S., The Rt. Hon. Lord Suffield, P.C., G.C.V.O., K.C.B., The Rt. Hon. Lord Montagu of Beaulieu, Admiral of the Fleet the Rt. Hon. Sir Edward Seymour, P.C., G.C.B., O.M., G.C.V.O., Admiral The Hon. Sir Edmund Fremantle, G.C.B., C.M.G., Count Henry de La Vaulx (Vice-President Aero-Club de France), Sir David Salomons, Bart., Sir Norman Lockyer, K.C.B., F.R.S., Professor Sir William Crookes, O.M., F.R.S., Sir Hiram S. Maxim, The Rt. Rev. Bishop Welldon, Martin Dale, and Henry Deutsch de la Meurthe (President Ae.C. de France).

As announced last week, the result of the ballot for the nine places on the Committee was declared as follows:—

Capt. R. K. Bagnall-Wild, G. B. Coekburn, Maj. J. D. B. Fulton, C.B., R.F.A., Maj. F. Lindsay Lloyd, J. T. C. Moore-Brabazon, Com. C. R. Samson, R.N., A. Mortimer Singer, T. O. M. Sopwith, and the Marquess of Tullibardine, M.V.O., D.S.O., M.P.

Alteration to Club Rules.—On the motion of Col. H. C. L. Holden, seconded by Prof. A. K. Huntington, the alterations to the following Rules were unanimously confirmed:—

No. 11. Meetings of the Committee. The Committee shall meet at such times as it may arrange, and a special meeting may be summoned at any time by the Chairman, Vice-Chairman, or, in case of emergency by the Secretary, or on a requisition signed by $\frac{1}{3}$ of the members of the Committee.

No. 12. The quorum of the Committee shall be five, except in the case of a special meeting summoned in accordance with Rule 11, when the quorum shall be three.

No. 7. Ballot Papers. Not less than seven days before the Annual General Meeting a ballot paper shall be posted to every Member. The ballot paper shall contain the names of candidates nominated for the Committee in the form of an alphabetical list. The same type is to be used throughout.

Flying at Hendon.

On Thursday, in the words of Mr. Robson of the Grahame-White Aviation Co., the Hendon aviators seem to have been afflicted with an epidemic of "epiloopsy." Mr. Reginald Carr started it on the 50-h.p. Grahame-White tractor biplane, known locally as "Lizzie," and looped twice. Mr. Goodden, who has been training for looping for some time, came out on his Caudron and did likewise. Then Mr. J. L. Hall caught the fever and proceeded to loop on his 50 Avro. After that "Lizzie" was requisitioned by Messrs. Strange and Noel, after which Mr. Carr, whose case was "chronic," went up and made four more loops. All the patients are said to be doing well, but the attack will probably last for some time.

The flying on Saturday was unusually interesting, for it included demonstrations of looping, a cross-country handicap, and the debut of one of Germany's leading machines.

After various exhibition and passenger flights by Messrs. Noel, Marty, Strange, and Howarth, Mr. Goodden started on a 45-h.p. Caudron and commenced looping. While he was still performing, Mr. Carr went up on "Lizzie," which seems an ideal machine for the purpose, this being the first time two pilots have looped together in England.

The next item was the cross-country handicap, the competitors being Messrs. Strange (G.-W.), Birchenough (ditto), Noel (70-h.p. Maurice Farman), Carr ("Lizzie"), and Marty (80-h.p. Blériot). The order of finish was Mr. Marty (1st), Mr. Noel (2nd), Mr. Carr (third). Mr. Strange lost himself fairly successfully and retired after the second lap.

Undoubtedly the sensation of the afternoon was the appearance of Herr Thelen and the Albatros biplane, 100-h.p. Mercédès engine (illustrated elsewhere). The machine, which is beautifully constructed and finished, earned general admiration. Herr Thelen opened out the motor and shot off the ground like a rocket. The machine appeared to crawl through the air while climbing, but it reached at least 200 ft. before pylon No. 2 was passed. When once the tail was fairly up, the machine appeared quite fast.

Presently he switched off and glided down, and here occurred another phenomenon—judging from the glide it looked as if Herr Thelen was about to land in the middle of the aerodrome, but, when he flattened out the machine, it glided almost horizontally for at least 200 yards at a speed which did not seem to exceed 15 or 20 miles per hour before touching the ground. Then the plough-share, which acts as a brake, dug in and stopped the machine in its own length. The face of Mr. Gates as he watched the turf was a study.

Later in the evening there was some more passenger carrying and looping. Mr. Hall made several flights on his Avro, the engine of which is in very poor condition, and apparently insufficient to lift the machine except with the tail right down. Later, Mr. Raynham went up on the same machine, and although his knowledge of the inwardness of Avros helped things considerably, the machine was not entirely relieved of its dejected appearance.

Towards dusk, Mr. Henri Salmet arrived from Paris on a Blériot monoplane, 90-h.p. monosoupape Gnome, belonging to the "Daily Mail," and carrying a passenger. A stop had been made at Folkestone for petrol. Mr. A. Barr did some flying during the evening on the old 35-h.p. Deperdussin.

Hendon was very damp on Sunday, but the attendance was quite good—considering all things—and many semi-amphibious persons went for passenger flights. M. Marty was busy on the 80-h.p. Blériot, Mr. Noel gave several people a literal aerial baptism, and Messrs. Carr and Strange looped as happily as if it had not been wet and cold and windy. One of the box-kites was also in evidence, being flown in turn by Messrs. Strange and Birchenough.

Easter at Hendon.

A fine programme of "looping" and air racing has been organised for the Seventh London Aviation Meeting, to inaugurate the Hendon Summer Season, during the Easter Holidays, commencing on Thursday, April 9th, and ending on Bank Holiday, April 13th. Thursday afternoon's programme will consist of exhibitions and competition flights. Demonstrations of "looping" will be given by Mr. Gustav Hamel on the afternoons of Good Friday and Bank Holiday.

The 12-mile speed contest for the "Shell" Trophy will be flown on Good Friday, the programme commencing at 3 p.m. Saturday's contests include a 20-mile cross-country race and a quick-starting competition. Special flying displays will be given by Mr. Gustav Hamel and other well-known Hendon aviators on Sunday afternoon. The Bank Holiday events include exhibition flights commencing at 12 noon, the grand speed handicap for the Barclay Walker Trophy at 3.30 p.m., and "looping" displays by Mr. Gustav Hamel.

Mr. Hamel in Wales.

Mr. Hamel's exhibition flights at Eley Racecourse on Wednesday were somewhat interfered with by heavy rain which thinned the gate considerably. Late in the afternoon Mr. Hamel came out and looped five times. On one landing he flew through a telegraph cable and two wires without damaging the machine.

On Saturday, at the same place, Mr. Hamel was favoured with fine weather, the presence of Lady Bute, the local municipal authorities, and a gate of 10,000. During the afternoon 12 passengers were carried, and the loop was duly looped some twenty times.

On the intervening Thursday Mr. Hamel visited Newport Racecourse at Caerleon, where he displayed himself inverted many times to a large and enthusiastic gate.

The local papers say that he made his demonstration too thrilling by charging the crowd, causing the spectators to scatter panic-stricken. There was nobody crushed to death, and the motor did not peter out, but either catastrophe might easily happen next time, and one hopes either that Mr. Hamel will confine his acrobatics to the centre of the ground, or that the Cardiff paper is wrong.

Mr. Hucks at Northampton.

Mr. Hucks, who has been giving a three days' demonstration at Northampton, seems to have done particularly well.

The meeting opened on Thursday. After giving several 90 deg. exhibitions and taking up a free flight passenger, he then started the important part of the business, namely, looping and upside-down flying. A similar demonstration was made on the two succeeding days. On Friday, Mr. Hucks took up a small, three-year-old nephew as passenger and his mother. Later he flew upside-down for over 2 minutes.

To-morrow, Friday, and Saturday, April 3rd and 4th, Mr. B. C. Hucks has been engaged to give demonstrations of looping-the-loop and upside-down flying at the Lincoln Aerodrome, Nettleham Road, Lincoln, commencing each day at 3 p.m.

Shoreham Flying.

With the improvement in the weather there is renewed activity at the aerodrome, and every day this week the Pashley's Henry Farman and the Avros of the Shoreham Flying School have been out.

The latter school numbers, to date, nine pupils, all of whom are making excellent progress. A Farman type box-kite, 50-h.p. Gnome, built by Messrs. Dowland and Clarence, has been added to the 45-h.p. Green Avro and the rolling machine, and its trials last week, piloted by W. H. Elliot, were quite satisfactory. The machine has bigger main spars than the ordinary Farman and is stronger and heavier throughout. Three-ply ribs, a narrower nacelle, and a tank capacity of 12 gals. of petrol and 3 gals. of oil are its principal features.

To cope with the increasing number of pupils, Pashley Bros. are completing a second biplane of 32 ft. span and 30 overall length, single surface tail fitted with a 40-h.p. water-cooled engine.

The Cedric Lee circleplane has not been out this week, the 80-h.p. Gnome, which may be replaced by an Isaacson later, requiring tuning.—E. L. D.

Flying at Bognor.

On Friday last Lieut. J. C. Porte, late R.N., took out the new Curtiss boat, built by White and Thompson, Ltd., in a choppy sea. With a passenger the machine got off at the first time of asking, and behaved very well in the air. Mr. Porte made further trials on Saturday, carrying Mr. Bonsor, a director of Messrs. White and Thompson, as passenger. Mr. Sperry, of the Curtiss-Sperry stabiliser, witnessed the trial.

The Week's Work.

Weather Report for Week Ending March 29th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Windy	Fair	Very Windy	Windy	Good	Imposs.	Wet
Calshot ...	Fair	Fair	Wet Wind	Fine	Fine	Fine	—
Eastchurch ...	Fine	Fine	Fine	Windy	Fair	Fine	Windy
Hendon ...	Fair	Fair	Windy	Windy	Windy	Windy	Wet
Liverpool ...	—	—	—	—	—	—	Windy
(W'loo) ...	Calm	Breezy	Breezy	Squally	Fair	Windy	Rain
Montrose ...	Bright	Dull	Fine	Rain	Bright	Bright	—
Salisbury Plain ...	Good	Wet	Fair	Windy	Good	Windy	—
Shoreham ...	Windy	Windy	Fine	Fine	Fine	Windy	Wet

School Reports.

Brooklands.—AT BRISTOL SCHOOL: Instructor during week: Mr. Merriam. Pupils with instr on machine: Srgt Deane (6), Mr. Racine Jacques (2). Strts or rolls alone: Srgt Deane (2). 8's or circs alone: Mr. Racine Jacques (5), Srgt Deane (5). Machines in use: Two Bristol school biplanes. Several cross-country flights by Mr. Merriam during week.

AT VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight, and Elsdon. Pupils with instructor on machine: Comte Fitz-James (4), Lts. Acland (4), Leighton (4), Underhill (6), Mansergh (1), Capt. Phillips (5), Mr. Wilberforce (4). (All biplane.) 8s or circs alone: Comte Fitz-James (12), Lt Mansergh (5), Mr. Hurst (2), Mr. Wilberforce (all biplane). Mr. Hinshelwood (1) (monoplane). Certificate taken during week: Lt Mansergh (on biplane). Machines in use: Propeller biplanes, two; monoplanes, one. New machines: Mr. Barnwell on gun-carrying biplane with passenger.

AT SUNBEAM CO.: Mr. Jack Alcock out on Thursday, Friday (three times), Saturday (several flights), and Sunday. Each time with a passenger at 2-3,000 ft. On Sunday Mr. Raynham made a flight. Machine in use: Sunbeam Co.'s Maurice Farman, 150-h.p. Sunbeam engine.

Eastchurch.—The Hon. Maurice Egerton flying on his Short biplane (50 Gnome) on Tuesday, Wednesday, Thursday, Friday, Saturday, and Sunday, and on Friday Professor Huntingdon also flew.

Foryd, Abergele.—Mr. Vivian Hewitt flew to Abergele and Rhyl, the flight lasting about 1½ hrs. On Friday Mr. Hewitt made an hour's flight with a black lamb as passenger.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instrs during week: Messrs. Howarth, Strange, and Lillywhite. Pupils with instr on machine: Messrs. Robinson, Smiles, Lowe, Kershaw, Parker, Moore, and Prince Sapielha. Strts or rolls alone: Messrs. Norris, Bjorkland, Edridge-Green, Grahame, Parker, and Lts Lindopp, Kershaw Dunne, Weber, Piercy. 8's or circs alone: Messrs. Bjorkland, Grahame, Edridge-Green, Norris, and Lts Lindopp, Clarke. Certificates taken during week: Lt Lindopp, Messrs. Grahame and Edridge-Green. Machines in use: Grahame-White school biplanes; Blériot monos.

AT HALL FLYING SCHOOL: Instructor during week: Mr. J. L. Hall. Pupils with instr on machine: Mr. H. C. G. Allen on Avro with Mr. J. L. Hall. Strts or rolls alone: Messrs. Arcier (7), H. C. G. Allen (14), Miss d'Elsa (5), T. H. Rose (6), Virgilio (6). 8's or circs alone: Messrs. L. Palmer (3), A. L. Brookes (2) circs and 8's, Messrs. Arcier and Gearing half circs. Machines in use: Avro and Caudron biplanes; Blériot and Deperdussin monos. Mr. J. L. Hall out every day on Avro. Passengers of note, Sir Francis Popham, L. G. Aimes, N. Bosanquet, etc.

AT W. H. EWEN SCHOOL: Instructor during week: Mr. F. W. Goodden. Pupils strts or rolls alone: Messrs. Garvin, Verney, and Curtis. Circs alone: Mr. Bankes-Price and Mr. Curtis. Machines in use: 35-h.p. Caudron biplanes. On Thursday afternoon, Mr. F. W. Goodden made a fine exhibition flight, and "looped" four times on a two-year-old 45-h.p. Caudron school biplane.

AT BEATTY SCHOOL: Instructors during week: M. Baumann. Pupils with instructor on machine, Messrs. Hodgson (7 mins), Ding (25 mins), Garvin (35 mins), Bentley (28 mins). Machines in use, Wright biplanes.

Liverpool (Waterloo).—Instructor during week: Mr. H. G.

Melly. Pupil strts or rolls alone: Mr. J. Crean. Machine in use: Blériot mono. Mr. Melly testing Isaacson on two-seater.

Salisbury Plain (BRISTOL SCHOOL).—Instructors during week: Messrs. Jullerot, Voigt, Stutt. Pupils, with instructor on machine: Lt. Bonham Carter (13), Lt. Bolitho (7), Lt. George (1), Mr. Hay (10), Mr. Chambers (12), Lt. Myburgh (7), Lt. Rabagliati (2), Capt. Walcot (9), Lt. Harman (3), Mr. Locker (1). Doing strts or rolls alone: Lt. Harman (1), Lt. George (2), Lt. Barratt (2), Lt. Bolitho (3), Capt. Fell (3). 8s or circs. alone: Lt. Harman (3), Lt. George (2), Lt. Bolitho (2), Lt. Barratt (4), Capt. Fell (6). Certificate taken during week: Lt Barrett obtained his certificate in splendid style on 27—3—14, and Capt. Fell also took 2/3rds of his brevet. Machines in use: Three school biplanes; one tractor biplane.

Shoreham.—AT SHOREHAM FLYING SCHOOL: Instructor during week: Mr. W. H. Elliott. Pupils strts or rolls alone: Messrs. Purnell, A. Maskell, P. H. Maskell, Aikman, Sholto-Douglas. Machines in use: Tractor biplanes, 45-h.p. and 35-h.p. Avros. On Wednesday, Thursday, and Friday, Mr. W. H. Elliot exhibition flights on new Henri Farman type box-kite, 50-h.p. Gnome.

AT PASHLEY SCHOOL: Instructor during week: Mr. C. L. Pashley. Pupils, with instructor on machine: Messrs. Gray, Mortimer, and Willett. Strts or rolls alone: Mr. Hale. Machines in use: Farman type biplanes. Mrs. Maas had a very excellent flight on Sunday in wind and rain.

Windermere.—AT LAKES FLYING CO.'S SCHOOL: Instructor during week: Mr. Stanley Adams. Mr. Lancaster out on "Water Hen" six times during week. On Friday damaged wing tip and balance float owing to gust when on water.

The Aeronautical Society.

1. Elections.—Members: Capt. W. D. Beatty, R.E.; G. K. B. Elphinstone; A. Klemm Schmidt. Assoc. Members: F. D. Brooker; A. E. Steele; C. H. Vickers.

2. Meeting.—The eleventh meeting of the present Session will be held on Wednesday, April 15th, at 8.30 p.m., when Brigadier-General D. Henderson, C.B., D.S.O., will preside. Mr. Griffith Brewer, A.F.Ae.S. and Lieut. J. N. Fletcher, R.E., will read a paper, to be followed by a discussion on "The Value of Ballooning as a Training for Flying."

Tickets for visitors, not introduced, may be obtained from the Secretary, 11, Adam Street, Adelphi.—B. G. COOPER (Sec.).

The Edinburgh Aeronautical Society.

The last meeting of the session will be held on Friday, April 3rd, at 8.30 p.m., at the Maitland Hotel, 33, Shandwick Place, when the Secretary will give a lecture on "Some Notes on the Aero Show."

"Slack Fund."

The following subscriptions have been received to date in connection with the above fund:—E. Beatty, £1 1s.; W. Strunk, £5; De Villiers, £1 1s.; Handley Page, £1 1s.; E. P. Dairs, £1 1s.; A. W. Bryant, 5s.; A. Mortimer Singer, £10. This brings the total amount of subscriptions up to £157 13s.

Integral Enlargements.

Owing to the large amount of orders in hand the Integral Propeller Co., Ltd., have outgrown the works taken this time last year and they have removed to much larger and more commodious premises in Highgate. As a matter of fact, the works taken are those recently occupied by the British Deperdussin Co., at 18, Elthorne Road, Upper Holloway, N.

The firm remove to this address on April 2nd.

To Aerodrome Managers.

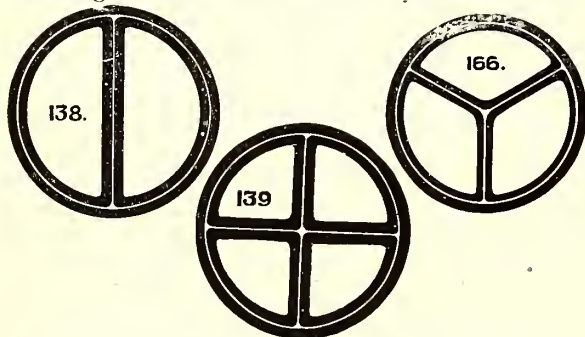
"The Local Government Chronicle" for March 14th contains an article on loitering on highways which should be of considerable interest to proprietors of aerodromes and to those who give exhibition flights. The author, Mr. Charles Rudkin, B.L., shows conclusively that persons loitering in the road to watch flying can be moved on by the police, and those who keep their cars standing in the roadway can be prosecuted for causing an obstruction. People who are mean enough to watch flying without contributing to the expense thereof deserve prosecution, and it would be interesting to see a case brought against some of the offenders.

Safe Lining for Steel Tube.

One of the most important developments in steel tube work which has been produced in late years is the system of reinforced tubes introduced within the last few months by Messrs. Accles and Pollock, of Oldbury, Birmingham. The writer has known this firm intimately for the past nine years, and they have always been foremost in improving steel tube work. They were one of the first to produce satisfactory butted weldless tube, both with internal and external butts, and in the producing of special sections and bends of tubes they have on many occasions succeeded when older firms have given up the task in despair. This latest development of theirs is the strengthening of steel tube by the use of internal liners which are practically in one piece with the outer tube and yet are not of it.

As may be seen from the accompanying sketches the tube may be had with either a single cross-webb inside or with a three-way webb, or with a four-way webb. The process of producing these webbs is so simple that one wonders that it has never been done before.

Of course, the idea of driving two "D" tubes face to face inside a round tube is very old indeed, but it always had the disadvantage that one could never be perfectly sure of the outer surface of the "D" tubes and the inner surface of the other being in contact. Under the new system the two "D"



tubes, or three 120 deg. tubes, or four quarter-round tubes are driven, all together, inside a single round tube of say 1½ in. diameter, this tube with the liners in it is then passed through an ordinary tube die of slightly smaller size and drawn down in the same way as any other tube to a diameter of say 1½ in. outside. The result of this is that the enormous pressure caused by the die pinches the outer tube down on to the liners so that they become practically a solid mass with it.

The effectiveness of this method of pressing the tubes and liners together is shown by the various vibratory tests carried out by the firm. Two pieces of tube were taken, each of equal length, equal strength, and of equal weight per foot run, one of them being an ordinary solid-drawn steel tube and the other a tube reinforced in the new way with two "D" shaped liners. The samples were then put on a special machine which tested them by constant vibration. At the end of seven hours' vibration the ordinary solid drawn tube cracked through and broke. The other tube, however, ran on with the same vibration at the same speeds for 26 hours before cracking, and when it did so it was only the outer case which parted, the liners inside remaining absolutely intact and having between themselves sufficient strength to have withstood any load to which they could reasonably be put.

The utility of tubes of this sort is obvious. For such things as rudder posts, skid posts, struts, etc., they should be invaluable, and it should be quite possible, provided that sufficient orders were forthcoming, to produce a tube of streamline section reinforced in this fashion. It would, of course, necessitate special dies of difficult shape, but any big firm could well afford the expense in return for the additional safety obtained through the warning given before a breakage occurs.

One gathers that the price is by no means abnormal, and it is well worth the while of any manufacturer who is concerned for the safety of his machine to investigate the advantages of this tube. Messrs. Accles and Pollock will be very pleased to give full particulars on application.

One Moment—Mr. Aviator!

Just reflect how easily little mishaps occur. Be prepared.

You can dress wounds promptly and properly by means of this pocket outfit of bandages, etc.

Burroughs Wellcome & Co., London

'TABLOID'

FIRST-AID

No. 706 (Aviator's)

Price, 7/6. All Chemists

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.

Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions. Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

MULTI-CELLULAR AEROPLANE HAVING AUTOMATIC STABILITY APPARATUS.—The Proprietor of the Patent No. 9128 of 1911, and Patent of Addition No. 9884 of 1911, for the above, is desirous of entering into arrangements by way of licence and otherwise, on reasonable terms, for the purpose of exploiting the same and ensuring their full development and practical working in this country.—Address all communications to HARRIS & MILLS, Chartered Patent Agents, of 40, Chancery Lane, London, W.C.

THE Proprietor of the Patent No. 7586 of 1911 relating to "Improvements in Propellers for Aerial and Nautical Navigation" desires to make arrangements for the exploitation of the invention in this country, under licence or otherwise.—Full particulars may be had of WHEATLEY & MACKENZIE, Chartered Patent Agents, of 40, Chancery Lane, London, W.C.

FINANCIAL.

WANTED, £150 to complete a high-powered plane; view competition and mutual ownership; with flying experience preferred.—Box 552, THE AEROPLANE, 166, Piccadilly, W.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

W. H. EWEN SCHOOL OF FLYING, W. CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

LEARN to Fly at the Premier English Aviation School. Tuition given on Avro tractor biplanes, Blériot monoplanes, Caudron biplanes, Deperdussin monoplanes. Moderate inclusive fees, flying and constructional. **PASSENGER FLIGHTS AT MODERATE CHARGES.** Exhibitions of "looping the loop" and upside-down flying, etc., given by J. Lawrence Hall.—For full particulars apply to **HALL AVIATION CO., Aerodrome, Hendon, N.W.**

PASHLEY BROTHERS, **SHOREHAM AERODROME, SUSSEX.**

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from **THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.**

LIVERPOOL AVIATION SCHOOL, Waterloo, near Liverpool.—Tuition, Passenger Flights, Exhibitions, on Blériot monoplanes (3). Melly's infallible release gear. Terms and prices on application.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.**

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE, 166 Piccadilly, W.**

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

ENGINES.

MINIATURE Gnome engine, 1½-inch bore cylinders; magneto ignition; complete in every detail; awarded silver cup, bronze medal, and diploma, London Exhibition; sacrifice £10.—Box 551, **THE AEROPLANE, 166, Piccadilly, W.**

SEVERAL Bréguet machines, machinery, tools, and the following engines for sale:—1 130 H.P. **SALMSON, direct drive; 2 130 H.P. SALMSON, with reducing gear; 4 85-90 H.P. SALMSON.**—Apply to the Receiver and Liquidator for **BREGUET AEROPLANES, LTD., 72, King's Street, Hammersmith, W.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.**

AVIATION JOURNALS.—"The Aeroplane," complete to date, 146 copies, 10s.; "Flight," three years, Volumes III, IV, V, complete, £1; "Aero," all monthly, 25 copies, 37 weekly, 10s.—**FRED HOPKINSON, Moorland, Retford.**

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1 6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MONOPLANE, size 31 inches by 24 inches. Price 5s. Flights of nearly a ¼-mile have been obtained with this model. Set of parts, with drawings for building above model, 2s. 6d.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

'Phone: Kingston 669.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our New Illustrated Models Catalogue now ready, Contains Sopwith Tractor, Deperdussin, Blériot, Canard, Clarke Mono, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic rod. pe doz. yds

S. J. KEMP & Co.,

CROWN WORKS, Kingston-on-Thames.

(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)

Every Requisite for Model Aeroplanes. Send 1d. for List.

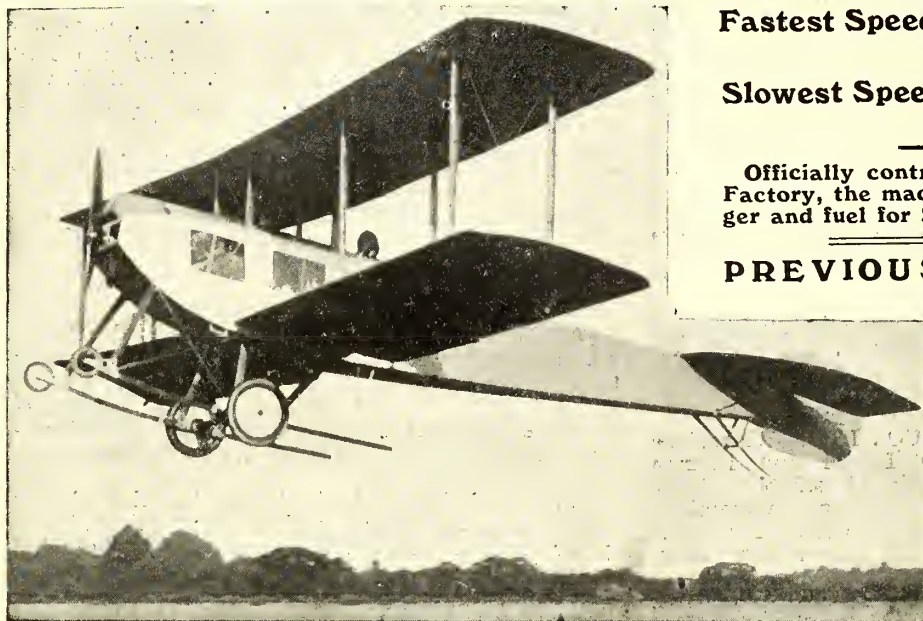
Models of Every Description built promptly.

Phone 321 Kingston.

Telegrams "Garage, Kingston-on-Thames."

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnome) beat all **WORLD'S RECORDS FOR EFFICIENCY.**



**Fastest Speed 92 miles
(154 kms.) per hour.**

**Slowest Speed 36.9 miles
(61 kms.) per hour.**

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

**PREVIOUS RECORDS on
the preceding type
of SOPWITH
BIPLANE (80 h.p.
Gnome).**

**British Height Record
(Pilot alone) 11,450 ft.**

**British Height Record
(Pilot and 1 Passenger)
12,900 ft.**

**British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.**

**WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.**

**ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.**

THE SOPWITH AVIATION CO.

Telephone:
1777 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

(Contractors to His Majesty's
Admiralty and War Office.)

Telegrams:
"SOPWITH, KINGSTON."

EASTER FLYING AT HENDON.

Thursday, Good Friday, Saturday, Sunday & Bank Holiday
April 9 to 13. **SEVENTH LONDON AVIATION
MEETING (5 days)** Opening of Hendon Summer Season

**EIGHT AIR RACES and "LOOPING
THE LOOP" by GUSTAV HAMEL.**

Thurs. April 16, BIPLANE SPEED CONTEST,
(Commencement of Weekly Air Races on Thursdays during
the Summer Season.)

Races Every Saturday from 3.30 p.m.

Special Exhibition and Passenger Flights, every Thursday
and Sunday afternoon, from 2.30 p.m. till dusk (weather
permitting)

Passenger Flights daily from £2 2s. 0d.

Admission 6d., 1s., 2/6	Motors .. 2/6
Children Half-price.	(Includes chauffeur.)

Saturday next, April 4th. APRIL MEETING.
Nine mile Grand Speed Handicap at 3.30 p.m.

London Aerodrome, Hendon, N.W.

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON:

'Phone; Kingsbury 120 (4 lines).

Wires:

"Volplane, Hyde, London,"

LONDON:

166, Piccadilly, W.

'Phone: Mayfair 5935. Wires:

"Claudigram, Piccy, London."



THIS is an illustration of the Cover of the 1914
Fixture List, which contains numerous illustra-
tions of the Flying at Hendon, a complete list of
Fixtures and Events for 1914, and particulars of
Passenger Flights, Routes to Hendon, Season Tickets,
etc. Free on application to London Aerodrome Offices,
166 Piccadilly, London, W.

"THE AEROPLANE," APRIL 9, 1914.

THE AEROPLANE



Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, APRIL 9, 1914.

No. 15

HARD AT WORK.



(Photograph by Dunn, Brechin, N.B.)

Seaplanes on Manœuvres at Leven in the Firth of Forth last week. Capt. Barnby, R.M.L.I., about to alight on Short 74, and Lieut. Oliver, R.N., coming ashore on Short 77.

THE AIRCRAFT COMPANY LIMITED.

Hold the sole rights direct from the
Farman Brothers for the building of

HENRY & MAURICE FARMAN Aeroplanes and Hydro-Aeroplanes

In GREAT BRITAIN and the OVERSEA DOMINIONS

Works and Flying Grounds :
HENDON.

Offices : 47, Victoria Street,
WESTMINSTER, S. W.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying is equipped not only to train the novice, but also to give extra practice to those who have already taken their certificates. For terms, etc., apply to the Beatty School of Flying, Hendon Aerodrome, London, N.W.

Tuition on Handley Page Monoplane & Wright Biplanes

£75.

Special terms to Naval and Military Officers.
(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.				ABROAD.			
	s.	d.			s.	d.	
3 months, post free	1	8		3 months, post free	2	9	
6 " " "	3	3		6 " " "	5	6	
12 " " "	6	6		12 " " "	11	0	

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Improvement of Aeroplanes.

In the course of his very apposite remarks at the close of the Aeronautical Society's meeting on Wednesday of last week, Colonel Sykes drew attention to a point which aeroplane manufacturers will do well to read, mark, learn and inwardly digest, for their own good and for the sake of their pilots' necks—or, perhaps, I should say their own reputations, for pilots are cheap, and, as one of them, whom I have quoted before, remarked, "It is very easy to be brave in the drawing office." Colonel Sykes pointed out that as a rule if an engine stopped, or even broke, in the air nothing much happened, so long as there was reasonable landing ground below, but that if a machine "stopped" of its own accord, through something going wrong, the results were disastrous, and he recommended that more attention should be paid to the machines themselves.

Perhaps it is the imminence of the all-British aero-engine competition, perhaps it is the chase for more and more speed, or for assorted records, perhaps it is merely the swing of the pendulum, but of late it does seem that people concerned with aviation have been so busy thinking about engines that they have rather forgotten the machines which carry them. The position, as between the aeroplane and its engine, is rather that between projectiles and armour plate. The projectile is improved till it pierces the armour and then the armour is improved till it keeps out the projectile—and so the pendulum swings. Similarly we produce aeroplanes which overload the engines, then we produce more powerful engines which pull the aeroplanes to pieces, or if they do not quite do that, produce such speeds that unknown or incalculable effects are set up by strange air-streams which did not exist at lower speeds, or if they existed had very little effect on the behaviour of the machines. Just at present we seem to be swinging out too far on the engine side, and it is time our designers turned their attention to the investigation of what their machines will have to stand up to when the big-powered engines get to work, or to how the very light, fast machines are likely to behave when made to fly with engines which hitherto were thought ultra-large, or with what is just as bad, very small engines giving enormous power.

No doubt some of our scientists will tell us that all these things can be calculated beforehand, but the unfortunate fact remains that they are not. Also, I have my doubts as to whether calculations based on the behaviour of mica models weighing an ounce or two hung in a wind-tunnel which permits of a maximum air speed of about ten or fifteen miles an hour, and a crooked air-stream at that, are of any value when applied to a machine weighing over a ton and hurtling through the air at about ninety miles an hour. Also, these beautiful calculations make no allowance for concentration of air-streams on certain points owing to the rotary action of slip-streams from propellers acting in some unknown way on fuselages of certain shapes. Such unknown concentrations may play Old Harry with reams of figures relating to the turning moments of, and strains on, rudders or elevators.

What is a Streamline?

As a matter of fact, very little is known about what air does under varying conditions. Until quite recently we all believed, because the scientists told us so, that the ideal streamline shape was a cone preceded by a hemisphere, the height of the cone

from base to apex being equal to the diameter of the original sphere—or something like that. If the scientists know any better now they have never published the fact. Also, we thought that the front of a streamline body could be almost any shape, so long as it tapered nicely aft. Now we are beginning to find out that the correct streamline shape varies for every different speed, and that at very high speeds a sharp cutting entry is just as necessary as a tapering tail, and that if one can get the head and tail right one can have a parallel-sided body of almost indefinite length in between.

The mere ignorant aeroplane builder found this out some while ago, but no scientist has yet given us any figures on the subject, nor have the correct shapes been found for the various speeds. That is one of many similar reasons why I would rather trust myself to a machine built by a man who puts in a baulk of timber where his eye tells him it is needed, and holds it in place with a healthy steel strap, than to a highly scientific carefully calculated affair built of high-tensile, heat-treated steels which any metal-butcher can reduce to the strength value of a sardine-tin with the help of a five-shilling blow-lamp—which is just what is likely to happen when a newly enlisted air-mechanic of either Service is put on to make a minor repair. I would back any one of a dozen men I know to find out more about streamlines in a month at Brooklands, with the help of a borrowed racing car, a jobbing carpenter, and a spring-balance, than the combined efforts of the National Physical Laboratory, Chalais-Meudon, the Eiffel Tower, the Laboratory at Koutchino, and the University of Göttingen have discovered since flying first attracted the attention of that section of humanity which the Americans expressively call "the high-brows."

The Basis of Calculations.

No one doubts the accuracy of the calculations of our various scientific bodies, but there are more than grave doubts about the soundness of the premises on which their figures are based. One does not doubt for a moment that all the calculations about the rudders and elevators of the R.E. biplanes which bent while under test at Farnborough recently were accurate to many places of decimals, but I should like to bet that no one had even the foggiest idea of just what effect would be produced on them by the particular taper of fuselage used when acted upon by the slip-stream of the particular propeller used with the 120-h.p. Austro-Daimler. Also, one would like to know something of the tests made with the material used, and whether the calculations were based on the tensile and bending stresses of the steel as received from the makers, or on the same steel after it had been bent, drilled, hammered, acetylene-welded, and otherwise tinkered.

The R.E. has the makings of quite a nice machine. It has many of the good qualities advocated in this paper during the past year or two. The one I saw at Farnborough the other day had a 120-h.p. Austro-Daimler engine. I take it that as it was not very new it was not built by Beardmores, but it was a good engine anyhow. It had well staggered planes with a pronounced dihedral, and it had two pairs of struts outside the fuselage, so that the spars need not whip if they are of big enough section. It had ailerons instead of a warp. It had a consoling fin in front of the tail, though the big engine perched

high up right out in front of the planes looked as if its vertical fin effect would be very great, and I am perfectly sure the machine would spiral badly if the rudder went wrong through a broken wire or anything else. In fact, taking the machine all round, and allowing for the rounded-off fuselage of the B.E. type, it is not unlike the Sopwith seaplane flown by Mr. Hawker in the Circuit of Britain.

The R.E. flies quite well, or Mr. Spratt would not have done his 18,900 feet with it on Tuesday of last week, but after those rudders and elevators one has the more doubt about whether its "innards" are reliable. Hence one thanks heaven for the Inspections Department which now stands between all aeroplane designers and the pilots of the R.F.C.

The Inspections Department has nothing to sell, it does not buy anything, it has no axe to grind, it has no reason to be biased in favour of one thing or another. The men at the head of the Department know very much more about aeroplanes than most of the people who are making them, and, above all, they can be depended upon to give everyone a perfectly square deal. Because a square deal includes condemning as impartially as approving—as well as because of Colonel Sykes' wise warning—I counsel "the trade" to keep a very wide-awake look-out for faults and possible improvements in their machines.

Presumably the Inspections Department can condemn designs as well as details, and that a whole series of perfectly constructed machines may be condemned because of some aerodynamic defect. Personally, I would rather be on a machine with a defective turn-buckle on one of its duplicated load-wires than on one which was bound to spiral if the pilot's foot slipped for an instant. Also, one hopes that the Inspections Department as a whole will be strong enough to condemn machines wholesale if any firm ever obtains orders by influence instead of on the merit of its work. If a standard of workmanship is set by the Inspections Department it should be continually raised as the work of the best firms improve, and by workmanship I do not mean "spit and polish," but the actual work done in joining parts together, and so forth.

For the sake of the pilots of the R.F.C. it will be all the better if, under the new department, the inspection of machines is to be more severe than ever, for no one can complain of severity so long as it is strictly just, and everyone can depend upon receiving justice now and henceforth.

The Work of Inspection.

Hereabouts I may remark that there seems to be in the minds of many people a remarkable misconception as to the duties of the Inspections Department. For instance, Mr. Sandys, who has done much good work for the R.F.C. in the House of Commons, asked last week why no officer of the Inspections Department had inspected B.E.4 before it killed Captain Allen and Mr. Burroughs. I have not the honour of knowing exactly what is included in the whole duty of the Inspections Department, but I can state without fear of contradiction, simply on logical grounds, that the said duty does not include inspecting aeroplanes when once they have been taken over by the squadron commanders. Otherwise there would be no limit to the I.D.'s work. It would practically have to adopt a policy of "one aeroplane one inspector," and keep a dozen inspectors quartered with each squadron to inspect every machine every time it came down after every flight. That is the job of the squadron air-mechanics. The Inspections Department's responsibility must logically cease when a new machine has passed its reception tests and has been handed over to the Flying Depot, or whoever actually makes over all the machines to the squadrons. Unless a breakage occurs in

that machine the Inspections Department has nothing more to do with it, and if anything breaks it is for the squadron commander to decide whether the breakage is due to fair wear and tear, or to some inherent defect. Only in the latter case can any responsibility come onto the I.D., and then it has to be decided whether it is a defect which should have been discovered under inspection, though it may well be that such a defect may be due to a hidden flaw in material or to general ignorance of what happens in the air.

For example, if the I.D. had existed in 1912 it would have been responsible for the B.E.4 smash, because an unsupported 20-gauge rudder-post should never have been passed at any time. Also, it could reasonably have been held responsible for various other smashes due to defective design, or to insufficient inspection of repairs not done in the squadron workshops. As it is, its responsibilities have not yet begun, for it is only just coming into being. One thing, however, is quite evident, there must be no divided responsibility. It must be clearly laid down where the I.D.'s activities cease and where the Squadron Commander's begin.

Apparently, the Squadron Commanders have no objection to taking responsibility, for I gather unofficially that flying on B.E.s was resumed last week as the result of a conference of Squadron Commanders who practically made up their minds to "chance it" and go on flying B.E.s in their present state, merely warning their flying officers to go easy on their controls till the new rudders and elevators which are now being put through have been fitted.

Devoluted Responsibility.

This seems to me a very unwise decision, and one in which the authority which stopped the flying on B.E.s should have taken a firmer stand, for although no flying officer is compelled to fly a machine he personally considers unsafe it will need more moral courage to stop on the ground than it will to fly. And yet, if there is a smash the responsibility will officially devolve upon the officer who flew of his own free will. Flying a machine one believes to be unsafe is the surest way of wrecking one's nerve. I know that since more has been made known about the detail design and construction of the B.E.s, as the result of the recent deaths, a number of the wiser flying officers have grave doubts about flying them, yet those officers must either be brave enough to confess they are afraid, or go on flying because the young and reckless, or obstinately ignorant, pilots insist on doing so. A sudden gust under certain conditions may put as big a strain on the controls as would looping the loop or flattening out quickly from a vertical dive, and merely forbidding "stunt" flying (as it is vulgarly called) is no safeguard against accidents.

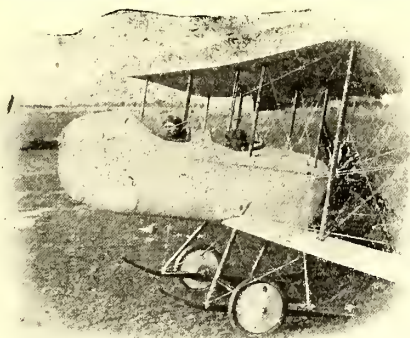
However, the squadron commanders have chosen their own road, and on them the responsibility will really rest if there are any more accidents. Let us hope there will not be. At any rate, something might be done temporarily in the squadron workshops by putting light stay-wires from the edges of B.E. elevators and rudders to the levers where the control wires are fixed, and by staying the rudder-posts to the fixed tail planes. But, even so, one does not like that thin post pierced by the pins for the rudder hinge blocks and acetylene welded also.

It is detail work of this sort which needs looking after in nearly all aeroplanes, for it is fixings of this kind which are likely to give way when the high-powered engines are put on. One could go on pointing out defective detail design for pages, and that is why I counsel manufacturers to pay heed to Colonel Sykes' words if they wish to avoid trouble with the Inspections Department.—C. G. G.

Gordon-Bennett Eliminators.

Mr. Harry Knox, a director of the All-British Engine Co., Ltd., writes:—"As to how the eliminating trials for the Gordon-Bennett should be treated, surely one should have them in the same way as the old eliminating trials for the Gordon-Bennett, which were held both for England (in the Isle of Man) and for France, at various dates prior to the races. In these instances the trials were treated as a race in themselves, pure and simple. The first three cars home were the three to re-

present their respective countries in the Gordon-Bennett. It appears to me that unquestionably this should be the case with aeroplanes. The races should be run under the same conditions as the Gordon-Bennett. This should ensure to us the most suitable machines for the race in question. If you remember, in one of the eliminating trials for the Gordon-Bennett race held in the Isle of Man, two Napiers were 1st and 2nd respectively, and a Wolseley 3rd, and that was how they ran in the race."



LEARN TO FLY
at the
VICKERS FLYING SCHOOL
BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

VICKERS LIMITED,

Aviation Department, Vickers House,
Broadway, Westminster, S.W.



The "Bristol" *Flying Schools*

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. □ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

A Reserve for the Royal Flying Corps.

BY W. E. de B. WHITTAKER.

This earth is so designed as to give Great Britain a natural defence in disproportion to her size. The seas that wash her borders hold terrors incalculable for neighbouring nations. Curious illnesses, engendered by the manner of the sea's movement, make any prospective journey none too pleasant, and the possibility of an unkind reception on these shores makes matters still worse. So it has happened that through the ages which have passed since William the Norman came no invasion has been even momentarily successful save, of course, that of the American tripper. That there are advantages in this defensive geographical position it would be idle to deny, but at the same time the disadvantages are great. Immunity from peril over long periods of time dulls the senses and the improbable soon becomes the impossible in the minds of the people. Because no nation has landed an army on these shores for nine hundred years it is assumed that none ever will, and that this isle will ever remain impregnable. Not only does the man in the street think this as he roams the City soliloquising on the vanity of all human things outside England, but many of his leaders are of the same opinion.

The result of this curious self-complacency is that out of all the great nations of the earth—excluding the U.S.A.—Great Britain stands alone in that she possesses the only professional army. Her people know nothing of the art of war save what they learn from lavishly illustrated histories brought out in parts at sevenpence a fortnight. The standing army is highly efficient but very small, and there is in the country no very serious reserve of trained men. The Army is not up to strength, many reservists have ceased to be available from various reasons, and the Territorial Force is the farce it was meant to be. Thus though a war of six weeks' duration might be carried on more or less successfully, the losses of a longer contest could not be made up from trained resources in the country, and untrained levies are useless and dangerous.

Abroad the situation is quite different. There each able-bodied citizen is a potential soldier. All arts and crafts have their representatives. Whatever may be the work, of whatever degree of knowledge and science, France and Germany can at all times find the most capable men in the country age for age in the ranks of the army. Here in England men have to be trained in such matters as wireless work, railway work, motor driving, or any other of the many trades requiring special knowledge. These trained men are no less vulnerable than the veriest idiot who carries a rifle and the death-rate among them is just as high. And owing to the necessity of elaborate training they are irreplaceable in the time necessary.

We make considerable use of civilian mechanic drivers for motor transport and of wagoners for horse-drawn vehicles. Some use is made of other tradesmen in so far as it is possible, but the results are not highly satisfactory. This problem of supplying a reserve of skilled workmen has puzzled military authorities for many years. As the days drift by the position

becomes worse as more and more training is required owing to the increasing complication of the many sciences employed in the art of war.

Some years ago, when motor-cars first made an efficient or semi-efficient entry into the world, it was realised that it would be the greatest foolishness on the part of the army to buy a large number of only half-trained and extraordinarily unreliable motor-cars when they only had a problematical use. Yet in order that the army should not lose entirely by this decision it was decided to form a corps of volunteers, who, with an attractive uniform and a commission as officer in the Volunteer Forces, roamed the country on their cars at stated times in the year carrying valuable loads of general officers and staff officers of all grades. For each day's service they received allowances at the rate of a shilling a mile and a certain rate of pay which I have now forgotten. Their rank was allotted, if one may use the term, according to their position in the motor trade—at least that was the malicious story of those who were not in the corps. In the fullness of time the Motor Volunteer Corps became the Army Motor Reserve, and over a page of the Monthly Army List was filled with the names of the gallant officers attached. During its existence, for it died simply of inanition in the summer of last year, the corps did much useful work in saving regiments from inspection by losing the inspecting officer in the wilds of the country. Many a staff officer was misled and never accounted for owing to the carelessness (or thoughtfulness, one is not sure which) of one or other of the A.M.R. officers. Yet in very truth they were inexpensive for the work they did and the amusement they provided, and one can afford to shed a tear of regret over the grave of the departed corps.

A somewhat similar situation as regards lack of men is with us now in connection with the Royal Flying Corps. The Army can find within its bounds a sufficiency of pilots to fill the first line of the Corps, but its effective reserve is, and must be, very inadequate. It is clear that the casualty rate in this corps when in action will be very high in comparison with any other branch of the service. Death, injury and collapse of nerves will all serve to deplete its ranks.

Not only in men but in machines do we want a reserve. An effective reserve in machines (that is a reserve of privately owned aeroplanes) is not of the highest value unless there are pilots accustomed to pilot them. Each type of machine has its own idiosyncrasies and it is flown at its highest efficiency by a pilot who has had experience of it over some time.

An attempt has been made to form a Reserve of the Royal Flying Corps by absorbing a number of civilian pilots into the Army and training them at great expense. So far as it goes this is excellent policy, and a reserve of very highly efficient pilots is thus obtained.

But all these men have received a fairly elaborate training and have been turned into semi-soldiers. It is not every pilot



The latest Lohner biplane, with Austro-Daimler engine, at Vienna. One of these is shortly to come to England.

1914 Two-Seater Seaplane 504 Type.

A splendid all-service machine. Quoted as one of the finest, if not the finest, in the world.

After the Show—

The Verdict of the Critics,
"NOTHING BETTER"

1914 Single-Seater 511 Type.

The very latest word in aeroplane construction — smart — serviceable — compact.

NOTHING
BETTER

AVRO

NOTHING
BETTER

Contractors

to the

Admiralty & War Office.

1914 Two-Seater Gun-carrying Seaplane, 508 Type.

Novel features—advanced ideas. Quick climbing. Speedy.

Contractors

to

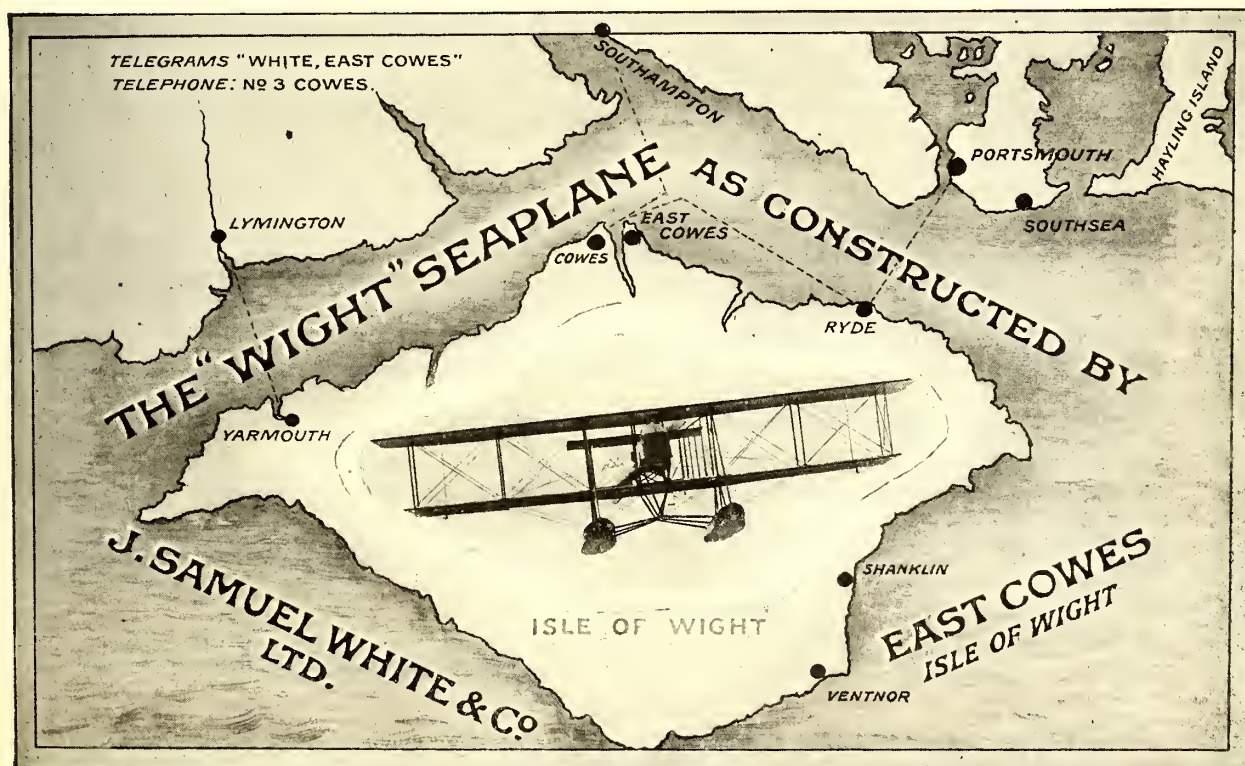
Foreign Governments.

A. V. ROE & Co., Ltd.

Clifton Street, Miles Platting, MANCHESTER.

Telegrams: "TRIPLANE, MANCHESTER."

Telephone: 337 FAILSWORTH.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

who would care to go through the extended preliminaries necessary before one can become an officer in the R.F.C., and yet there are many men in the country who would be only too glad to give their services as pilots to the country in time of need if they could do it with the minimum of trouble at the present time. In aerial work the important man, from a military point of view, is not the pilot but the observer, who must in every case be a soldier. No civilian can acquire in the time at his disposal a sufficient knowledge of things military to make him of any real value as an observer where observation has to be almost instinctive. Therefore my suggestion refers entirely to pilots whom I regard for this purpose in the same light as a civilian mechanic driver or a wagoner. They have acquired knowledge of their trade at greater expense and under riskier conditions and, therefore, deserve some sort of preferential treatment.

It is not possible at the present time to form a Territorial branch of the R.F.C. as the pilots available are spread about the country too thinly even to staff a squadron. In any case, any expedient such as I am about to suggest can only be of a temporary character as was the Army Motor Reserve. But the present is the matter which concerns us all and not the future.

Is it not possible for the War Office to enrol all such pilots as desire in a small corps or a section of the existing R.F.C.—convert the Second Reserve if so desired—willing to give their services when required and at set prices? They would be provided with a uniform, neat but not gaudy—one that would enhance their value on a public aerodrome—and they would be addressed as, if you like, Pilot. No Army rank should be given them, as they would take orders direct from Flight Commanders of the Regular Service and from the observer whom they were piloting. Their duties would simply consist of piloting and nothing more. Their pay, after the outfit allowance, would be something in the nature of £1 a day for each day on duty. No retaining fee need be given. If the pilot should use his own machine a further running allowance of so

much a mile would be given and all repairs while on service would be made at Government expense. Candidates for such a corps might be asked to pass a flying test at the Central Flying School on a Service machine if necessary, and at some date convenient to themselves, the Government paying travelling expenses.

It would seem as though there were many pilots who would be willing to do this sort of thing. Such as these might be employed on manoeuvres or at odd times during the year, as well as forming a nucleus for war service when desired. As to a reserve of aeroplanes belonging to these pilots, such machines should be passed at intervals by the Inspections Department always at the pilot's expense, provided at the same time that he is the owner. In return for this expenditure of time and money he would be paid a small sum for each month during which his machine remained in an efficient condition. These aeroplanes in time of war would become the property of the Government at a previously fixed price.

There are many difficulties to overcome in such a scheme as this, but as it is a purely temporary measure the worst features would do but little harm. At present, if war fell upon us it is almost certain that all civilian pilots would be asked to give their assistance, and it is therefore just as well to regularise the position in advance.

Passing the doctor need be by no means so rigid a function as if the man were being taken on for continuous service. If a pilot broke down on active service so much the worst for him. There would be plenty to replace him.

All this is avoided abroad by the mere fact that every pilot in the country is a soldier and can be called on for his services at any time of national danger, and at no cost other than mere mobilisation charges. When in the fullness of time conscription becomes a part of our national life then there will be no need for a Flying Corps Reserve of the type of which I speak.

In any case such a scheme would do something to help the progress of flying in this country.

Questions in the House.

WRITTEN ANSWERS. 2 APRIL.

MR. JOYNSON-HICKS asked the Under Secretary of State for War how many B.E. aeroplanes have actually been built at the Royal Aircraft Factory; how many of them have been booked as replacements of old numbers; and how many have been issued as new machines?

MR. H. BAKER: Sixteen, of which seven were issued as new machines, and the rest were reconstructions of other types.

[Two out of the sixteen have broken in the air with fatal results, and sundry others have given way without killing anyone. Does this inspire confidence in R.A.F. design and workmanship?—ED.]

MR. JOYNSON-HICKS asked the Under Secretary for War whether he has forbidden for the present the use of the B.E. machines; and what machines are now being flown by the various squadrons of the Royal Flying Corps?

MR. H. BAKER: The use of the B.E. aeroplane was temporarily suspended, but they are now being flown. The other machines in use are Avros, Blériots, Henri Farmans, Maurice Farmans, and R.E.s.

MR. JOYNSON-HICKS asked how many officers in the Military Wing of the Royal Flying Corps holding the rank of flying officer have flown Service machines since the 1st January, 1914; and how many have made cross-country flights on such machines?

MR. H. BAKER: The answer to the two parts of the question are, respectively, fifty-one and forty-three.

[Many of these officers have only made two or three flights each in that period, and some only one.—ED.]

MR. JOYNSON-HICKS asked the Under Secretary of State for War whether, having regard to the statement that aeroplane B.E. 205 was originally a Howard Wright biplane, reconstructed at the Royal Aircraft Factory, he will state what portions, if any, of the original machine were contained in the new biplane; and, with regard to the statement that B.E. 204 was originally a Bristol biplane, he will state what portions, if any, of the original machine were contained in the reconstructed machine?

MR. H. BAKER: The two aeroplanes mentioned retained, as originally reconstructed, nothing of importance except the engines.

[Note the prevarication, "as originally reconstructed." B.E. 205 had a 70-h.p. Renault engine which was never fitted to a Howard Wright, and B.E. 4 had an 80-h.p. Gnome, which was never in a Bristol biplane.—ED.]

MR. JOYNSON-HICKS asked the Under Secretary of State for War whether, in testing the new R.E. machines, the elevator flaps of several bent while being flown, in other cases the rudders bent while the machines were being flown, and in one case it broke off owing to a gust of wind hitting it while it was standing on the ground?

MR. H. BAKER: The answer is in the negative.

[Note again the prevarication. An R.E. rudder did break while on the ground, but it may not have broken "off." Elevators did bend while being tested by an R.A.F. pilot.—ED.]

MR. JOYNSON-HICKS asked whether the alleged reconstruction of old aeroplanes in the Royal Aircraft Factory is in fact a fiction to disguise the actual building of new machines at the factory which are merely substituted for the numbers of the old, smashed, or discarded machines?

MR. H. BAKER: Seriously damaged aeroplanes are, under present practice, struck off charge and replaced by new ones with new numbers. Formerly it was customary to class as reconstruction the practical rebuilding of an aeroplane, if the original engine remained available.

[Note that the engine might be "available" although it was not actually used in the "reconstruction." These show how unpleasant questions may be avoided. Also, written answers avoid the possibility of still more unpleasant supplementary questions.—ED.]

A Correction.

Owing to a subconscious geographical transposition of ideas, it was made to appear below the frontispiece of *THE AEROPLANE* last week that Mr. Thornely, the first British biplane looper, is of Oxford and not of Cambridge. Apologies to Mr. Thornely. At any rate, he was ascribed to one of the older foundations and not to London or Birmingham Universities.

THE GNÔME ENGINE COMPANY.

(SOCIETE DES MOTEURS GNÔME.)

To whom all applications for Gnôme
engines and spare parts should be made
for

Great Britain and the Oversea Dominions.

THE GNÔME ENGINE COMPANY,
47, VICTORIA STREET, WESTMINSTER, S.W.

THE
Monk Engineering Co.,
LTD.

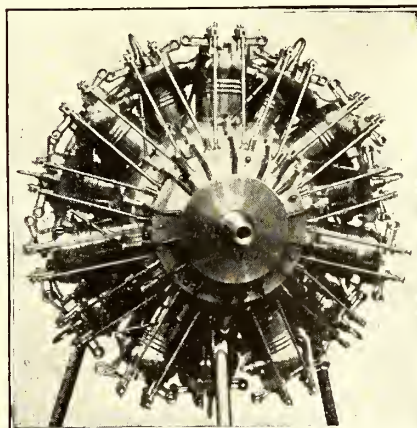
High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES!

SALMSON
AERO-ENGINES
SYSTEM CANTON - UNNE.



Phone No.:
7 Stroud.

Tele.
Address:
Humpidge,
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

London Office:—87, Victoria Street, S.W.
Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," April 3rd, 1914:

War Office, April 3rd.—Regular Forces.—Royal Flying Corps (Military Wing).—Lieut. L. Da C. Penn-Gaskell, 3rd Batt., Norfolk Reg., from the Reserve, to be a Flying Officer, and to be seconded (March 18); Sec. Lieut. G. N. Humphreys, Special Reserve, from the Reserve, to be a Flying Officer (February 26).

Memorandum.—Capt. (temp. Major) E. M. Maitland, Essex Reg., is granted the temporary rank of Lieut.-Col. whilst employed with the Naval Air Service (April 1).

NAVAL.

Admiralty appointments, April 1st:—

Lieutenants: E. H. Sparling, R. G. Loch, A. D. Cunningham, and J. W. O. Dalglish, to the "Pembroke," additional, for course of instruction with Naval Airship Section; J. F. Williams and G. W. W. Hooper, to the "Pembroke," additional, for course of instruction at the Central Flying School, to date May 11th.

Sub-Lieutenant L. Tomkinson, to the "Pembroke," additional, for course of instruction at the Central Flying School, to date May 11th.

Admiralty appointments, April 2nd:—

Commander N. F. Osborne, to the "Pembroke," additional, for command of Kingsnorth Airship Station, to date April 1st.

Sub-Lieutenant L. Tomkinson, to the "Black Prince," for passage home.

Royal Naval Reserve.—Asst.-Paymaster V. H. Coles, to the "Talbot," to complete twelve months' service, to date April 27th.

Of the above officers, Lieut. Hooper, R.N., took his brevet (No. 382) on a Deperdussin monoplane at the Deperdussin School at Hendon on December 17th, 1912, and Asst.-Paymaster Coles, R.N.R., holds brevet No. 656, taken on a Vickers biplane at Brooklands on October 27th, 1913.

Asst.-Paymaster E. B. Parker, R.N., who has been placed on the retired list, as noted last week, was one of the best fliers in the Naval Air Service. He flew the No. 3 Short biplane during the army manoeuvres last year, and did excellent service. During the winter he contracted a severe chill, which brought on hæmorrhage of the lungs, and for some time his state was extremely critical. However, he recovered, and has for some months been under special treatment for lung trouble. The writer met him at the Aero Show, and he was then looking better and stronger than before his illness, and one hopes that, after a suitable period, it will be possible again to utilise his services as a naval aviator.

At Eastchurch Monday of last week was a blank day, and the weather did not clear till late on Tuesday afternoon, when the Bristol tractor (80 Gnome), a Deperdussin (70 Gnome), a Henri Farman (70 Gnome), a Short (80 Gnome), and the 80 Le Rhône-Blériot were out. On Wednesday flying went on all day; four Shorts (two 50 and two 80 Gnomses), Blériot (80 Le Rhône), two Deperdussins, and a Sopwith (80 Gnome) were out. Thursday was again a busy day; two Shorts (80 Gnome and 50 Gnome), a Deperdussin, the 80 Le Rhône-Blériot, a Sopwith (80 Gnome), and an Avro (80 Gnome) all flying. An 80 Gnome-Short, piloted by Sub-Lieut. Young, R.N.R., made a trip to Eastbourne.

On Friday the weather still held fair and a Short (80 Gnome), the 80 Le Rhône-Blériot, a Caudron (80 Gnome), a Sopwith (80 Gnome), an Avro (80 Gnome), two Deperdussins (70 Anzani and 70 Gnome), and a Bristol tractor (80 Gnome) were all out, while a 50-h.p. Short was busy all day on instructional work. On Saturday the 50-h.p. Short was again busy instructing, and two Shorts (80 Gnomses), and a Deperdussin were out also.

At Yarmouth, on Wednesday, April 1st, Lieut. Courtney, R.N., flew Sopwith No. 6, and on his return Lieut. Sitwell, R.N., went out, and was in turn followed by Lieut. Bone, who in getting off damaged a float. There was no other flying during the week at this station.

Two new Henri Farman seaplanes were delivered to Yarmouth on Saturday, April 4th.

The Felixstowe Air Station was, one gathers, in the happy position last week of having all its four machines in flying order. Two of these are Maurice Farmans with 12-cylinder 100-h.p. Renault engines, which take a considerable amount of tuning, and the staff deserves congratulations.

On April 1st Lieut. Bowhill, R.N., flying a Henri Farman seaplane, No. 110, with Leading-Seaman Marchant as passenger, from Isle of Grain, descended at Clacton owing to engine stoppage. In alighting the machine turned over, and Lieut. Bowhill was somewhat shaken, but was not severely injured. The Clacton lifeboat put out to the rescue, but the aviators had already been rescued by a barge. Later in the day another officer en route to the Post Office to wire results was hailed by one of the aborigines with the question: "Hi, mister, are you the flier wot was drowned in the airyplane?" Our rural population becomes intelligent, does it not? Seaplanes 6 and 113, from Felixstowe, the latter piloted by Capt. Risk, R.M.L.I., O.C. Felixstowe, flew to Clacton to assist.

During the first three days of last week no flying was done at Leven. All hands were engaged in overhauling and setting in order for the manoeuvres, which lasted till April 3rd. Despite weather conditions being unfavourable for good flying, practically all machines were on active service. The regular staff was augmented by six naval pilots. The men of the wireless department had a busy time of it, and were no doubt glad when the manoeuvres were ended. All the Shorts have been fitted with wireless. Short seaplanes Nos. 42, 74, 75, 77 were all engaged, and Borel No. 86. Their work was chiefly reconnaissance; and flying from the mouth of the Firth to Rosyth. All officers had spells of flying.

The machines, and one of the hangars, are, one gathers, going on to Dundee, and the other hangar is to be sent on to St. Andrews.

The Leven correspondent of *THE AEROPLANE* writes:—"Yearly a howl arises from a section of the Liberal Party over the increasing Naval Estimates. If those estimable gentlemen, whose slumbers are made horrible by a ghostly procession of Dreadnoughts would only go into smaller details of administration, they might achieve some good. Take, for instance, the presence of the Flying Corps at Leven. The men arrived during the first week of March with material sufficient to build four hangars. The best part of a fortnight was spent in putting up two, and the others will not be erected at all. Flying only started towards the end of the week which terminated on March 21st. Five machines were brought. All these expensive preparations were carried out—for what? Not for training the men, but for three days' manoeuvres. Apparently Leven is the best place for manoeuvres, but no good as a base.

"Several of those connected with the flying say that Dundee is totally unsuitable, because it is out of the track of ships making for Rosyth, whereas Leven is directly in this track. The explanation is simple. The choice of the base lay with Mr. Churchill, and he picked out Dundee, not because Dundee was the best place, but for the reason that his constituents would be gratified by his decision. They may be, but the public generally are well entitled to grumble at money being wasted like water, for no good purpose whatever."

The foregoing is published without expression of opinion, but merely as showing how official actions may be, rightly or wrongly, explained.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending March 28th, 1914:—

No. 2 Squadron, Montrose.—There was no flying during the early part of the week, but on the 27th 1,300 miles were flown on B.E. machines. The squadron is well settled in at the new aerodrome.

No. 3 Squadron, Netheravon.—The pilots of "B" and "C"

flights were out most days throughout the week. Various experiments were successfully carried out.

No. 4 Squadron, Netheravon.—Flying took place daily after the 24th inst. Some new workshop plant has been erected and taken into use. Major Raleigh, the O.C. Squadron, returned to duty after his recent accident in Switzerland.

No. 5 Squadron, Farnborough.—All the officer and N.C.O. pilots were flying daily throughout the week over the country round Aldershot. Instructional work was continued.

No. 6 Squadron, Farnborough.—Flying was carried out daily, and satisfactory tests were made by the wireless flight.

Flying Depot, Farnborough.—The workshops were fully occupied with repairing aircraft and M.T. Experimental and instructional work was also carried out.

War Office, March 31st, 1914.

It is now permissible to make it known that Mr. G. B. Cockburn has been appointed to a responsible post under the Inspector of Aeronautical Matériel in the Department of Military Aeronautics, a fact on which both the Department of Military Aeronautics and Mr. Cockburn are to be congratulated.

Mr. Cockburn will be remembered as one of the first half-dozen aviators in this country, and it is highly satisfactory to know that his experience and his high personal ability will in future be available for the service of the country. He was the only British aviator who flew at the first Reims aviation meeting in 1909, his machine on that occasion being the first biplane ever built by M. Henri Farman. Thereafter he did much flying, and perhaps quite as much rolling, on the same machine on Salisbury Plain at the time when Major (then Captain) J. D. B. Fulton, R.A., who is now his immediate superior officer, was himself experimenting with his own Blériot. Mr. Cockburn also flew at the Wolverhampton aviation meeting in 1910, and at Bournemouth and Lanark.

Early in 1911 Mr. Frank McClean lent three Short biplanes to the Admiralty to be used for the instruction of the first four naval aviators, Lieut. (now Acting-Commander) Samson, Lieuts. Gregory and Longmore, R.N., and Lieut. (now temporary Major) Gerrard, R.M.L.I., officers who have since risen to highly responsible posts in the Naval Air Service. Owing to Mr. McClean's enforced absence from England, Mr. Cockburn devoted some six months of his own time, at his own expense, in teaching these officers to fly, and he accomplished his task with marked ability. Afterwards, Mr. Cockburn continued his own private experiments on Salisbury Plain, and built a small fast biplane of Farman type, aided only by a single mechanic.

Mr. Cockburn was married last year, and has since given up flying, and it is therefore the more satisfactory to know that his unrivalled experience is now to be used in the best possible way for the progress of British aviation. For the past year or so Mr. Cockburn has been a hard-working member of the General Committee, and of the Accidents Investigation Committee, of the Royal Aero Club, and happily his services will still be available in these capacities, as well as for his military work.

The bad weather of the first half of the week prevented any flying being done at Montrose, and it was Thursday before the machines were up. Once started, however, the officers made up for lost time and flew about 1,000 miles that day. Capts. Todd and Waldron, and Lieuts. Empson, Martyn and Rodwell, and Sergt. Mead, all on B.E.s, made extended flights, visiting Elgin, Perth, and St. Andrews. Major Burke flew B.E. 272 and Lieut. Harvey Maurice Farman 214 in local flights. The gusty wind of next day was perhaps the cause of the Maurice Farman machine keeping down on the ground. Capt. Waldron made two flights in B.E. 225, and Capt. Todd flew B.E. 233 to Edinburgh and circled the warships in the Forth. Lieuts. Empson and Rodwell flew B.E.s 228 and 229 north to Cruden Bay.

Next day, Saturday, flying started at 8 a.m., and eight machines were wheeled out of the sheds. Major Burke (B.E. 272), Capt. Todd (B.E. 223), Capt. Waldron (B.E. 327), Lieut. Martyn (B.E. 232), Lieut. Empson (B.E. 228), Lieut. Rodwell (B.E. 229), Lieut. Harvey Kelly (B.E. 225), all flew to East Fife to demonstrate to the new Secretary of State for War (Mr. Asquith), and circled Kilmarnock Castle, where he was staying. One hopes that the demonstration will help to impress on Mr. Asquith the need for more accuracy in his statements about the R.F.C. than we have received from Colonel Seely and his underlings. Major Burke was forced to descend here with engine trouble and a leaky tank.

The same complaint bothered Capt. Waldron, who landed in his second flight about a quarter-mile from the aerodrome. The Maurice Farman was badly smitten also with the same trouble.

The work of clearing the ground at Montrose is being rushed forward, and its appearance has undergone some remarkable changes. All round the sheds a trench has been dug for the insertion of the water-pipes. The new workshops which have been built at the back of the barracks are now finished and will be in occupation after the Easter holidays. These commence on Thursday, the 9th, and last for eight days.

AUSTRALIA.

On March 1st and 2nd the first flights of the Australian Commonwealth military machines were made by Lieuts. E. Harrison and H. Petre at Melbourne. On the 1st, Lieut. Harrison made two flights on a Bristol biplane, and was accompanied by Lieut. Petre as passenger on the second flight. Lieut. Petre then took out a 35-h.p. Deperdussin monoplane. On the following day Lieut. Harrison made three trips on two different Bristols, and Lieut. Petre made an extensive trip on a Deperdussin.

FRANCE.

On March 30th Sergeant Marvilliers was landing at the military school at Chalons when his biplane capsized. The petrol-tank collapsed and the machine caught fire, but fortunately help came before the pilot and his passenger were seriously injured.

Four three-seater Bréguets (130-h.p. 9-cylinder Canton-Unné engines) have been passed for the French army by Captain



Short Seaplanes 74 and 77 coming ashore at Leven during manœuvres last week.

Destouches. These machines climbed to 1,600 ft. in 5 mins. and attained a maximum speed of 72 m.p.h. and a minimum speed of 35½ m.p.h.

On April 4th the Maubeuge escadrille, under command of Captain Yence, flew to Targette. The escadrille consisted of Captain Yence on a two-seater Blériot, and Lieut. Rochette, Lieut. La Morée, Sergt. Constantini, and Sergt. Marakowitch on Deperdussins.

The aviation centre at Epinal is to be equipped with 15 tandem Blériots. The pilots for these machines are being trained at Buc.

On April 2nd five French naval seaplanes arrived at Monte Carlo from Fréjus. They were a Voisin biplane piloted by Lieut. Fournié, a Caudron biplane piloted by Lieut. Nove-Josserand, two Nieuport monoplanes piloted by Lieut. de l'Escaille and Ensign Destrem, and a Bréguet biplane piloted by Ensign Dutertre. During the afternoon the armoured cruiser "Foudre," the seaplane mothership, reached Monaco from Saint-Raphael, firing a salute of 21 guns in honour of the Prince of Monaco.

GERMANY.

Capt. Christiansen, of Hamburg, who gained his brevet only on March 26, made a lengthy cross-country flight two days later from Hamburg-Fuhlsbuettel via Kiel to Dresden. He was ten hours on the way, encountering heavy snow and rainfalls on his journey. Krumsiek flew back to Hamburg-Fuhlsbuettel on Capt. Christiansen's 100-h.p. Gotha-Hansa Dove, following the Elbe and arriving at Fuhlsbuettel shortly after midday. Without landing, he doubled back, returned and flew over the ground until 5.30 p.m., when lack of petrol forced him to land after a flight of 12 hours. This is German duration record for a monoplane.

On April 3rd a fatal accident occurred at Schleissheim. Lieut. Lankmeyer was killed and Lieut. Ruchti seriously injured. The accident is believed to be due to something fouling the propeller.

On the same day Lieut. von Loessi attempted to beat Herr Linnekogel's height record, but after reaching 4,560 metres in 15 mins. the cold stopped the engine.

A German military biplane had an accident at Noyanow, near Posen, on the 28th ult. The pilot, a German officer, was seriously hurt, but his passenger, a sergeant, escaped without damage.

Capt. Reinhard was flying at Strassburg on March 30th, accompanied by Lieut. Schultz, when the machine fell from a height of some 150 ft., killing the pilot and seriously injuring his passenger.

On April 2nd the new Zeppelin, No. 8, was brought out from its shed at Friedrichshafen, and, piloted by Count Zeppelin himself, it reached a height of 10,400 ft. within an hour—a record for a dirigible. After cruising over Lake Constance for five hours, the machine returned safely to its shed.

On April 2nd the Schütte-Lanz S.L. III left its shed at Mannheim and made a journey of three hours over the valley of the Neckar.

The German navy has ordered a Wight seaplane from Samuel White and Co., Ltd., of East Cowes; the machine is of the same type as delivered to the British Admiralty and fitted with a 200-h.p. Salmson.

The Potsdam Zeppelin Wharf will commence activity with rebuilding the "Sachsen," at present chartered by the navy, as soon as the "Hansa" has gone to Hamburg-Fuhlsbuettel. The body of the "Sachsen" is to be lengthened. It is said that the Potsdam Wharf has also received orders to build a new Zeppelin for the navy.—B.

AUSTRIA.

The Austrian Ministry of War is giving prizes, totalling 25,000 kroner (£1,000), to be competed for at the Vienna meeting to be held during the second half of June. The first competition is for two-seater machines capable of carrying a useful load of 800 kilos (1,764 lbs.), and so designed that a gun mounted thereon would have a horizontal arc of fire of 120 degrees, and a vertical one of 60 degrees below the horizontal and of 30 degrees above the horizontal. With this full load the machine is required to climb a minimum of 2,000 metres (6,562 ft.) in 45 mins. from the time of leaving the ground, and to land in a specified ploughed field. The prize

(12,000 kroner—£480) may be divided into at most four parts if more than three succeed in passing these tests.

The second prize, amounting to a total of 13,000 kroner (£520), will be given for the machine showing the greatest speed variation. A variation of at least 2 to 1 is required, and the motor is required to run uninterruptedly during the slow-speed test (i.e., must not be switched on and off). This prize may be divided into three parts.

These competitions seem to offer opportunities for British machines. The prizes are not large, but orders must follow if the performances are really good.

ITALY.

P. 2 is to become still more glorious in her latter days by being utilised for certain important experiments in radio-telephony which Signor Marconi is engaged upon.

M. II took part in some naval manoeuvres a few days back, not, we believe, unconnected with these tests.

P. 5 left Verona on 31st ult., journeyed to Iesi, tried the new hangar there, left next morning for Rome, arrived at 2 p.m., left that city the same night, and made a non-stop flight back to Verona, having travelled nearly 2,000 kilometres (1,200 miles) in 53 hours, inclusive of stops. No wonder Verona is willing to contribute towards the sum of £20,000, the estimated cost of the work being undertaken there for providing accommodation for future aerial travellers.

Some anxiety, however, is felt as to the voting of this and other funds required by the War Office for aviation, owing to a recent change of government by which General Spingardi ceases to be Minister for War.

Lieut. Griffa met his end at Mirafiori on 31st ult., when flying an 80-h.p. Blériot, a sideslip being the adduced cause.

The Italian height record stands at 4,400 metres, say 14,000 feet. Pilot Lieut. Bolognesi, on Blériot (80-h.p.), at Piacenza.

P. 3 and other military flying machines were in some danger from a fire at Mirafiori among the cars in the military garage there last week. Luckily, the fire brigade arrangements are efficient, and damage was confined to the terrestrial vehicles, and doubtless excellent practice was obtained.

It seems clear that England's Forlanini dirigibles will be endowed with considerably more power proportionately than is the "City of Milan." I hear of four Isotta Fraschini motors being on order for the first one. Has the type been found underpowered, or is the British climate to be reckoned with? —T. S. HARVEY.

BELGIUM.

Lieuts. Liedel and Debuger, of the Kiewit escadrille, effected the circuit of Hasselt-Landen-Liège-Kiewit on April 2nd. The journey was accomplished in 1¼ hours, without incident.

SWITZERLAND.

Tests of the machines the Swiss military department has under consideration are going on at Berne. The competitors are a Blériot monoplane, a Hanriot monoplane, an Austrian Lohner biplane, a German L.V.G., and a German Aviatik biplane.—B.

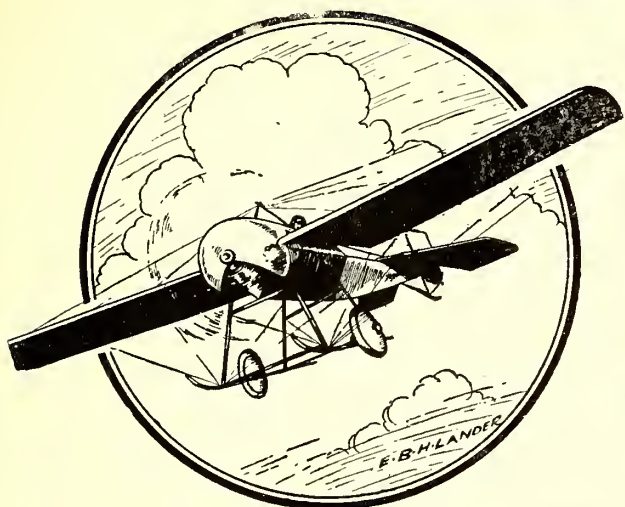
Foreign Notes.

France.

After a long discussion on the subject of the establishment of an "Accidents Investigation Committee," the Committee of the Aero Club of France decided by a majority not to proceed in the matter. Thus progress in aviation is retarded owing to constructors being unable to learn the lessons taught by accidents, as investigated and reported upon by the Royal Aero Club in this country. Also, the French Press have organised a regular conspiracy of silence, even to the extent of concealing the names of machines on which fatal accidents occur. It is little wonder that France is falling behind in the race for aerial supremacy.

On Wednesday, April 1st, M. Emile Védrines was testing a new Ponnier monoplane at Reims when the machine dived from about 50 ft., killing the pilot instantly.

M. Emile Védrines had been touring in the north of France during the last six weeks on a Ponnier monoplane (60-h.p. Le Rhone). He is stated to have flown a total of over 50 hours in this time without a single misfire or the need of any overhauling to his motor, and to have landed, during that time, on grounds of varying degrees of badness up to ploughed fields.



"BLACKBURN"

Monoplanes, Biplanes, and Hydro-Biplanes,
Propellers and Accessories.

THE BLACKBURN AEROPLANE COMPANY,
BALM ROAD, LEEDS.

Telegrams—"Propellers, Leeds." 'Phone—2822 Central.

London Offices: H. A. TURRILL, 104, High Holborn, London.
Telephone—4950 and 1791 Holborn.

BRITISH BUILT
CAUDRON
AEROPLANES
MONOPLANES
BIPLANES
HYDRO - AEROPLANES

Learn to Fly the Caudron

The W. H. Ewen School
is thoroughly equipped and
Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

"Beautifully smooth running, thereby adding to
general comfort, in addition to saving engine
power."—AEROPLANE.

PALMER CORD TYRES

fitted to your car will give you
greater speed, greater comfort
and greater safety, with
reduced petrol consumption.

In the Palmer Cord Tyre Book you
will find proof of the above. May
we send you a copy?

Will you write for it to-day?

THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).

Messrs. B. C. Hucks & G. Hamel invariably use "CASTROL" for lubricating their engines during their LOOPING EXHIBITIONS. Experienced aviators and motorists always insist on CASTROL because it is best for ALL engines.

At Hendon, on Mar 26 five pilots looped the loop using Castrol "R," this being the first attempt in each case.

G. C. Wakefield & Co.
Wakefield House,
Cheapside, E.C.

Germany.

On March 31st, at Johannisthal, Herr Linnekogel, on a Rumpler monoplane, reached an altitude of 6,300 metres (20,670 ft.), beating by more than the requisite 150 metres M. Legagneux' World's Record of 6,120 metres. If our German cousins continue to break world's records at their present rate France will shortly be as well off as England in this respect.

Austria.

Sufficient national entries have been received for the Austrian Schicht prize, so an international competition is unnecessary. The majority of the entrants are unknown abroad. Stiploschek and Reiterer, who will both pilot Motor-Luftfahrzeug-Gesellschaft machines, are the best known.—B.

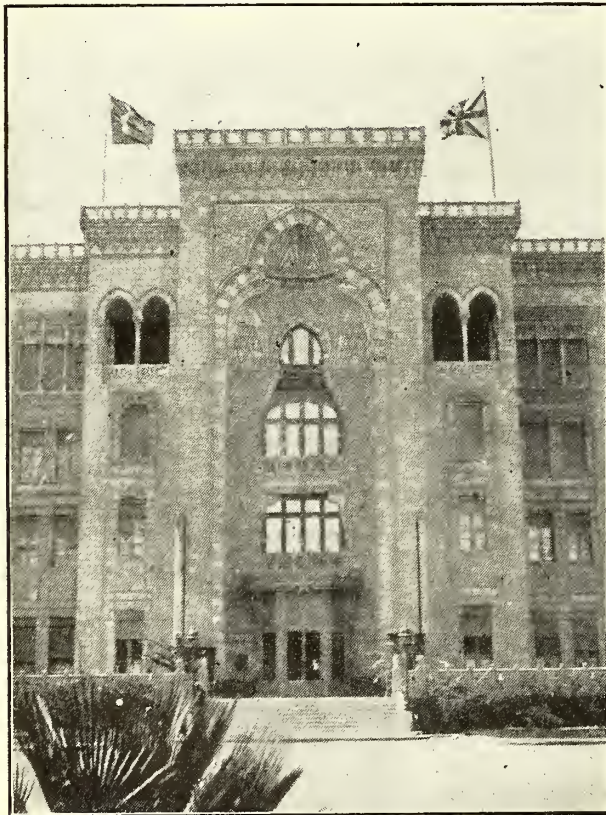
U.S.A.

The Aero Club of America, which ought to have known better, has given its official sanction to the Panama-Pacific "competition" for a race round the world, thus endorsing what is really a cute advertising scheme, for the prize has obviously been put up on such terms that the possibility of anyone winning it is extremely remote.

Egypt.

Mr. Frank McClean reached Khartoum on his 160-h.p. Short seaplane about March 23rd, and he wires that the machine is now coming back by boat. The delay in his journey was caused entirely by trouble with the 160-h.p. Gnome. Apparently this sized Gnome is particularly prone to go wrong. Mr. McClean and Mr. Ogilvie left Khartoum almost immediately and arrived in London on April 6th.

The accompanying photograph, taken in Egypt and sent to THE AEROPLANE by Mr. Oswald Watt, is rather remarkable, as, according to the flags, the wind is blowing two ways at once. The wind at the time was actually blowing straight past the camera towards the flags. The probable explanation is that the flags were in the swirl of air running round the tower in the centre, and the photograph is striking evidence of the unexpected tricks that wind will play when passing obstacles.



The Heliopolis Palace Hotel, showing by the flags the curious habits of Egyptian air.

The British Altitude Record.

On March 31st, Mr. Norman Spratt made two attempts on the British Altitude Record. It will be remembered that about a week earlier he had reached a height of 16,800 ft., on which occasion his engine was stopped by the cold. At his first attempt on Tuesday morning he had reached a height of 16,000 feet when the engine over-heated badly, the water in the radiator boiling. He then descended, certain adjustments were made, and at his second attempt in the afternoon he reached 18,900 feet.

The machine used was an "R.E." with a Beardmore-Austro-Daimler engine of 120 h.p.

The German Invasion.

Mr. C. C. Turner, almost the only journalist in this country, outside this paper, who has really done anything to help the British aeroplane industry, is to be congratulated on his article in "The Observer" this week on the German aircraft invasion. Referring to the recent rumours of big orders for German firms, he says: "It would, indeed, be disquieting if orders for foreign aircraft were given in bigger batches than for any British make," and he proceeds to point out that we have machines as good in this country as any abroad, and they can be had in quantities—if the makers are encouraged by orders.

This deep official interest in German aeroplanes dates from the time when this paper pointed out the progress Germany was making with inherently stable machines and warned the British trade to pay attention to this type. The D.F.W. firm had the courage to send a representative machine to this country, and this machine, which has certain good points, has recently been bought by the Admiralty, purely for experimental purposes. One gathers that no more will be bought till the firm can show climbing and flying speeds nearer to our ideas, and that any further machines must be built in England. This will now be done, and one wishes the venture every success.

Still, as Mr. Turner points out, one would like to know why a Handley Page inherently stable machine was not ordered for comparison by test against the D.F.W. There is, as a matter of fact, an H.P. machine in existence which has already proved its ability to fly well, and supposing the Admiralty engineers do not like some of the work in that particular machine—it certainly seems to contain a good many fittings of B.E. type—there is no reason why they should not have had another built.

Further, why this sudden craze for Mercedes and other German engines? Granted that they are good, are they any better than British engines? Has anybody ever given a British engine a fair test on a really good machine? The only example was the Green on the Sopwith seaplane. We heard a lot at the time about valve trouble, but it is only recently that the Sopwith Company have discovered that the "dying away" of the engine was not due to defective valves, but to air in the petrol, owing to the peculiar shape of the tank. Also, of late, the Sunbeam at Brooklands has been making a Maurice Farman do what no Maurice Farman ever did before.

Apart from these two, all we have heard is that certain engines have been wrecked by unfair treatment at the Royal Aircraft Factory, and that all British engines have been condemned by the War Office in consequence. It is impossible to expect fair treatment for the products of rival firms from the Royal Aircraft Factory, who are trying to produce a "standard" engine of their own, but let us hope that after the Naval and Military Aeroplane Engine Competition is over next month—it starts on May 2nd—the Admiralty will test thoroughly some of the best engines in the air, which is not at all the same thing as on the bench.

The fact that German and French engines and aeroplanes have done more than those made in this country does not necessarily mean that they are better, it merely means that they have received more official support.—C. G. G.

The Journey to Monaco.

British visitors to Monaco for the Rallye Aérienne and the Schneider Cup Race should note that the Rallye itself finishes on the 15th of this month, and that the Schneider Cup race is on the 20th. There is, however, sure to be a good deal of waterplane flying between these two dates. The quickest route to Monaco is by the South-Eastern and Chatham Railway to Calais, and it is well to note that there is a through train from Calais to Mentone in connection with the 11 a.m. from Victoria.

Three Years' Flying Experience.

On April 1st, two rather short papers were read to the Aeronautical Society, the first by Mr. B. C. Hucks, and the latter by Mr. Gordon Bell, the titles being "Three Years' Experience of Flying." Both papers were unusually, and quite unexpectedly, good, and it is a pity that there was not a larger audience. Mr. Hucks spoke interestingly from the pilot's point of view, and Mr. Bell not only revealed humour as a speaker, but showed his ability to think out aerodynamic problems and come to correct conclusions without the help of a State-aided experimental plant. The speakers were honoured by the presence in the chair of Lieut.-Col. F. H. Sykes, Commandant R.F.C., Military Wing, who, as usual, showed his keenness to help the progress of aviation and his sympathy with those civilians who are bearing their part in the fight for the conquest of the air.

Mr. Hucks said that the intention of his paper was not merely to be a recital of his experiences but to draw attention to a few points which should be possibly of benefit to others. He felt that his early smashes were due more to lack of confidence than to anything else. Twice he had smashes through descending hurriedly on unsuitable ground immediately a cylinder started to misfire. Now he would simply go on with six cylinders till a suitable landing ground appeared. He considered the present high quality of flying due more to the improvement in piloting than in machines. One had to go to Hendon, and see what wonders could be done on old Farman type biplanes, which, from the point of view of design, showed very little improvement.

[Here one must disagree. The G.-W. box-kites have double-surface planes of correct camber, properly streamlined struts, properly arranged weights, and double-acting ailerons. Bar their low power, open seats, and front elevators, they are aerodynamically the same as the most modern Farman.—Ed.]

As an illustration of the small advance in the machines themselves, he would be willing to loop on the first 50-h.p. Blériot that was ever built, if it was very slightly strengthened.

[By the time it was strengthened sufficiently it would be a different machine.—Ed.]

There was such a thing as too much confidence. When he first attempted to fly a box-kite, although it seemed a little strange, he got on quite well until he stopped the engine; then, not knowing that the tail would drop, he omitted to put the nose of the machine down, so that the machine stood still and sideslipped. Before the second swerve had gone far the machine fortunately hit the ground, and carried away its chassis. Mr. Hucks considered this the narrowest escape he has ever had, and felt that the tractor type of machine has an advantage in that it naturally picks up a diving position when it loses way.

[A properly balanced propeller machine does exactly the same.—Ed.]

The worst enemy is not wind or rain, but fog. He once flew into a cloud near the summit of the Eiffel Tower, and it was largely by luck that he did not fly into it. A fog makes cross-country flying almost impossible. Many pilots have flown onto rising ground in a fog when trusting their barographs to show adequate height. Rain is unpleasant, for it blurs the landscape, and if heavy is very painful to the face. The force with which it strikes an aviator may be judged from the fact that at times the leading edge of a propeller has been frayed by heavy drops as if gnawed by rats. Rain does not affect the flying capacity of a machine to any considerable extent.

The actual velocity of air can be neglected except so far as it affects the land speed of the machine. The quality of air is more important, and winds of 45-50 m.p.h. are often perfectly easy to fly in, while an apparently calm day may be very treacherous, as, for instance, on the day of the start of the Circuit of Britain at Brooklands. The contour of the surrounding country is an important factor in the steadiness of the wind, and mountainous country makes conditions very difficult, as he found at Strathpeffer. Mr. Hucks said that the term "air-pocket" is a misnomer. The so-called "pocket" is nothing but a down-current of air, and not a partial vacuum of any kind.

A pilot should master one type of machine, and stick to it, though, of course, valuable experience could be obtained by handling varying designs. Every type of aeroplane has its peculiarities, and they may confuse a pilot. If standard control were adopted, there would be less trouble. High speed was sought by designers in many cases by sacrificing other desirable qualities. Slow flying speed with a good chassis is often worth while, even if it reduces efficiency somewhat.

A machine intended to loop should be suited to the work, and the wing bracing should be very carefully studied. The range of the controls should also be great, and the machine should be so balanced that it will dive if the controls are abandoned. The safety of trick-flying lies in allowing sufficient height in which to recover from any position the machine may assume. There is no position that a well-designed machine can be put to from which it cannot be put back to the normal again, provided there is sufficient room. This is a most comforting thought to the ordinary pilot. It is important to handle the controls gently. Mr. Hucks related how particular M. Blériot was about this point. The warp of the looping Blériot is nearly four times as effective as that of the standard machine, and the elevator is considerably larger. The machine is absolutely unstable when flying upside down—it is so anxious to assume its normal position—and it cannot be made to climb or even fly level, even when the engine is running at full speed. Pilots should be strapped in absolutely firmly, and Mr. Hucks thinks straps should be used for ordinary cross-country flying to avoid being lifted up out of one's seat on a gusty day. It is true that one does not fly the wrong way up because there is any advantage in so doing, but the same thing can be applied to most things. One might criticise motor-racing on the same lines, but in each case they are extreme tests, which record the progress of science.

Mr. Gordon Bell said that, although he had been asked to read a paper, he doubted if he had been designed for public speaking. His first flying was in 1910 on the old Roe triplane with J.A.P. engine. Its three chief characteristics were to smother one with oil, to increase the growth of one's hair, and to frighten one to death. His next machine was the old Hanriot, a very wonderful machine for her time, for she answered her controls occasionally, which was very extraordinary. He then flew several machines he did not care to talk about. Mr. Bell continued that he next went to France, where he flew R.E.P. monoplanes. On one occasion, when flying at some 3,000 ft., the inside rear wing stay broke, apparently through the crystallisation of the steel tape used, causing the wing to assume all sorts of extraordinary attitudes. At first he felt impelled to come down as quickly as possible, but then thought it might be safer to come down as gently as possible. It was necessary to come down in a spiral to get into the landing-ground, and he had to decide whether to come down with the damaged wing inside or outside the spiral. He chose the former, as putting less load on it, and now asked the slide-rule gentlemen present to confirm his judgment.

Mr. Bell said he had noticed that a certain kind of cloud tended to make a compass perform a tango, and he wanted to know why.

Two important points for consideration were vertical surfaces and air-brakes. Early in 1907, the late Captain Ferber pointed out that the centre of fin area should be both above and behind the centre of gravity. M. Eiffel has pointed out that a flat surface, if inclined to a wind-stream, has its centre of pressure between two-fifths and one-third from the leading edge, but in a streamlined plane the centre of pressure comes much nearer the nose. So, when a machine with a streamlined body skids outwards on a turn, the centre of side pressure travels forward. Also, when a machine skids outwards, there is a strong fin action, with terrific vibration from the propeller, owing to one blade hitting the air and the other running away from it.

[Except Mr. Sayers in this paper, Mr. Bell is the first person to draw attention publicly to the travel of the centre of side pressure. Our great scientists, apparently, think it sufficient to calculate on the centre of side area—quite another

thing. Also, no one else has drawn attention publicly to the fin effect of propellers.—Ed.]

Mr. Bell thought designers had not given enough attention to the tail fin. Very few machines have half enough fin surface aft. He wanted to know about experiments with a fin on the top plane to make the machine bank when skidding out, for this was more dangerous than sideslipping inwards, as it caused the machine to spin.

As to air-brakes, machines have improved lately, and increasing efficiency had increased speed. It was alleged that many of these fast machines could fly at less than 35 m.p.h. when required, but that 35 miles per hour took a lot of chasing. One might use up two or three fields in catching it. It was necessary to have something to kill efficiency. The question was where to fit an air-brake. It must act through the centre of gravity, and must be easy to put on and take off. He mentioned that M. Blériot has been experimenting with a split rudder.

[Mr. Howard Flanders holds a master-patent for the split rudder for use as a brake, and this patent should be well worth securing.—Ed.]

The Discussion.

Mr. Bairstow, one of the aerodynamic authorities of the National Physical Laboratory, admitted that he had never been up in an aeroplane, but thought many of these problems could be settled without practical experience. A top fin might be right, but if the rudder or fin was too big, it made a machine worse. A dihedral angle to the planes was better, in conjunction with a big rudder. The N.P.L. was trying to find data for inherent stability for the benefit of constructors.

[One might suggest that any data discovered would be more useful if published at the time, instead of a year or two after the constructors had discovered it for themselves by smashing a few pilots.—Ed.]

Mr. Mervyn O'Gorman thought that the increased skill of pilots was mistaken for increased confidence. He did not agree that a pusher machine necessarily stalled itself when the engine was stopped. He asked the lecturers' opinions as to whether a machine really climbed better against the wind. He thought climbing speed depended more on the quality of the wind than on its direction. He had known a machine which normally climbed 480 ft. a minute do 1,000 ft. a minute on a certain calm day. At Wiener-Neustadt, on a plain 8 miles by 4, bounded by very high mountains on the S.W. side, the air was steady in any direction of wind. In fog, aneroids had a definite life-saving value. The R.A.F. had tested vertical fins on the top plane, but without good results. A dihedral was better. The thing to do was to arrange the side area correctly. When a dihedral was employed, it was preferable to employ stabilising flaps, and not warping, as the latter tended to interfere with the action of the dihedral.

[And although the R.A.F. knew all this, they still produced the F.E.2 and the spirally unstable warping B.E.s.—Ed.]

The Aeronautical Society.

1. Meeting.—The eleventh meeting of the present session will be held on Wednesday, April 15th, at 8.30 p.m., when Brigadier-General D. Henderson, C.B., D.S.O., will preside. Mr. Griffith Brewer, A.F.Ae.S., and Lieut. J. N. Fletcher, R.F.C., will read a paper, to be followed by a discussion, on "The Value of Ballooning as a Training for Flying." Tickets for visitors, not introduced, may be obtained from the Secretary, 11, Adam Street, Adelphi.

2. Election of Chairman.—Major-General R. M. Ruck, C.B., has been elected Chairman of Council for 1914-15.

3. Appointment of Committees.—The following committees have been appointed: (a) Inventions Committee—T. W. K. Clarke, B. G. Cooper, Col. H. E. Rawson, C.B., R.E. (b) Library Committee—H. F. Lloyd, B. G. Cooper. (c) Research Committee—Harris Booth, T. W. K. Clarke, B. G. Cooper, Col. J. D. Fullerton, B. Melvill Jones, Archibald R. Low, Mervyn O'Gorman, F. Handley Page, A. P. Thurston. (d) Finance Committee—Major-General R. M. Ruck, A. P. Thurston, B. G. Cooper. (e) Technical Terms Committee—L. Bairstow, Harris Booth, A. Graham Clark, T. O'B. Hubbard, A.

Mr. Percival, the pilot of the Dunne and the Cedric Lee, wanted to know whether a pilot could tell the direction of wind without seeing the ground. He had been told by another pilot that in spiralling one got more lift on coming round head to wind.

Colonel Sykes, in thanking Mr. Hucks and Mr. Bell, said that as one became proficient there was a tendency to become over-confident, which is as bad as too little confidence. A pilot should have the knowledge to restrain himself. To fly well one must know one's machine and many other things. He thought the knowledge of piloting had increased faster than the designs of machines, though this had improved greatly, especially in details. One particular machine had gained 4½ miles per hour in speed by the refinement of small things.

He remembered an early passenger-flight in France, when, the machine having stalled, the pilot shouted to him to lean forward to try and get the nose down. Engine stoppage now mattered little if there was reasonable ground below. We still need better engines, but an even greater need is that more attention should be given to the machines, for anything going wrong in the aeroplane itself means disaster.

From the military point of view, after experience on several types a pilot should stick to one type.

In France the tendency was at present for small, fast machines; in Germany the aim was duration. In England efforts were being made to combine the two.

Rain was not an insuperable difficulty, as was shown by the Avro in the Military Competition of 1912; but fog, night, and clouds had still to be overcome.

Mr. Hucks, replying, said that now a pilot became as proficient in three months as the older pilot had in three years, simply from the confidence gained by seeing what could be done with aeroplanes. As to climbing in a wind, things varied on different days, quite irrespective of the direction of the wind. On one occasion he could not pass 9,000 ft. after two hours' flying. On another occasion he had got to 6,000 ft. in 20 mins. He thought there was little actual difference in climbing head to wind or down wind. He had found that a machine felt more controllable when flying into the wind, and thus one could determine which way the wind was blowing when the ground was invisible.

Mr. Bell said that if those generally interested in flying had been allowed to hear the results of the experiments with fins on the top plane made by the R.A.F., the audience would have been saved the trouble of listening to him that evening. He thought that the whole vertical fin problem was most interesting and vital.

[The curious thing is that all the vast store of knowledge on this subject apparently possessed by the N.P.L. and R.A.F. has been so carefully concealed from those concerned with the aeroplane industry until the whole subject was brought into prominence in this paper.—Ed.]

Mr. O'Gorman moved a vote of thanks to Col. Sykes.

R. Low, Mervyn O'Gorman, C.B., Dr. T. E. Stanton, Lieut.-Col. F. H. Sykes.—B. G. COOPER (Sec.).

The Latest A.B.C. Engine.

It is interesting to hear that the new 12-cylinder water-cooled A.B.C. motor, which has a capacity of 1 litre more than the 12-cylinder Sunbeam, has just undergone its bench test with the utmost satisfaction. The previous type was quite good, but this one conforms to a still greater extent with the latest views as to aero engine design. The new type has a long stroke with over-head valves, following modern car practice, and roller bearing big-ends, which ensures absolute freedom from lubrication troubles. There is no fixed bearing in the engine, all being ball or roller, except the little-end bearing on the gudgeon pin, as this is not a true rotary motion, being a rocking movement and therefore not suited to rollers.

The new engine is rated at 150-h.p., and, with specially small carburettors fitted so as not to give too much power on the initial run, on accurately calibrated instruments she reached 148 h.p. One of those interested in the design of the engine is confident that when properly run in and tuned up she will give 200 h.p.

ACCLES & POLLOCK, LIMITED.ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**

OLDBURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST. **FOR AEROPLANES.**

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SAFETY.**BLERIOT-AERONAUTICS**, Belfast Chambers, 156, REGENT STREET, LONDON, W.Works: **BROOKLANDS, BYFLEET, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.

Telegrams—

"BLERIOPLAN, LONDON."

NORBERT CHEREAU, General Manager.

Telephone—

REGENT 3653.

CELLONAs NOW being used by the
Admiralty, War Office and
leading Constructors.

LTD.

17, OLD BROAD STREET, LONDON, E.C.

CONTRACTORS TO H.M. GOVERNMENT.

Telegrams: "AJAWB LONDON."

Telephone: 5359 London Wall.

AEROPLANE ACCESSORIES
OF EVERY DESCRIPTION.

Engine
Plates.
Eyebolts.
Strainers.
Bolts and
Nuts.
Cold Drawn
Steel Tubes.



Fox's Patent
Wire Bending
Pliers, &
Patent
Release
Gears for
Aero-
planes.

RUBERY, OWEN & CO.,
DARLSTON, SOUTH STAFFS, ENGLAND.

EVERYTHING FOR AVIATION & AVIATOR
"THE LATEST & THE BEST."

Booking

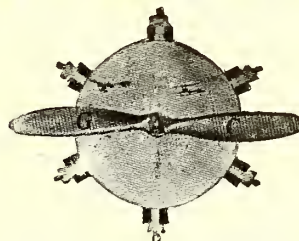
and

Office for

Exhibition

Passenger

Flights.



GENERAL AVIATION CONTRACTORS, Ltd.,
Phone: 280 Gerrard. 30, Regent St., Piccadilly, S.W.
Wire: Santochimo, London and at Milan.
Cables: Aeros, Milan.

Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality
ON ADMIRALTY AND WAR OFFICE LISTS



R. W. COAN
219,
GOSWELL
ROAD,
LONDON, E.C.

Telegrams—
Krankases,
Isling,
London.

Telephones—
3846 City
4879 Central.

FOR EFFICIENCY
& RELIABILITY IN**AERO-RADIATORS**

Send your enquiries to
the well-known radiator
experts

The Motor Radiator Mfg. Co.,

GREET, BIRMINGHAM.

Telegrams:
NERLEAK, BIRMINGHAM.

Telephone:
455 VICTORIA, BIRMINGHAM.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Monaco Rallye.

Below will be found a diary of the daily progress of the pilots who have started on the various itineraries to Monaco:—

APRIL 1ST.—M. Bertin, on a Nieuport, le Rhone engine, left Buc at 5.40 a.m., but returned and abandoned the attempt for the day. M. Garros, on a Morane Saulnier, 80-h.p. Gnome, arrived at Calais en route for Brussels, his official starting place.

APRIL 2ND.—M. Brindejone des Moulinais, on a Morane-Saulnier. 80-h.p. Gnome, left Madrid at 5 hrs. 53 mins. 42 secs. a.m., and reached Vittoria (285 kms.) at 11.10 a.m., left at 1 p.m., reached Albi 3.50 p.m., left at 4.50 p.m., and reached Marseilles (518 kms. from Bordeaux) at 6 hrs. 47 mins. 3 secs. p.m.—1,074 kms. (about 650 miles), in 12 hrs. 54 mins.

M. Garros, on his Morane-Saulnier, left Brussels at 5 hrs. 32 mins. 40 secs., and reached Calais (167 kms.) at 7 hrs. 8 mins. He left for Dijon at 7 hrs. 36 mins. (462 kms.), and arrived at 12.45 p.m. He left for Lyon at 1.29 p.m., arrived at Lyon at 3.30 p.m. Leaving at 3.40 p.m. he was stopped at Orange by an accident to his engine. He will go back to Paris or Brussels and start again on another machine.

M. Mallard, on a Nieuport, le Rhone motor, left Buc at 5.32 a.m., and covered the 245 kms. to Angers by 8.50 a.m. He left at 9.47 a.m. and covered the 296 kms. to Bordeaux by 1.15 p.m., but was stopped there by engine trouble.

M. Moineau, on a Bréguet, 130-h.p. Salmson, left Buc at 6.18, covering the 245 kms. to Angers by 9.25 a.m. Leaving at 9.50 a.m., he reached Chadignac at 12 noon. He left at 1.40 p.m., but was stopped at Cantinolles (near Bordeaux) with engine trouble.

M. Verrier, Henri Farman biplane, 80-h.p. Gnome, left Hendon at 5.33 a.m., but was stopped by fog at Bexhill and returned to Hendon.

APRIL 3RD.—M. Brindejone des Moulinais left Marseilles at 11 hrs. 15 mins. 12 secs. a.m. and flew the 190 kms. to Monaco arriving at 2 hrs. 24 mins. 22 secs. p.m., making the obligatory stop at Tamaris.

M. Moineau, on the Bréguet, left Cantinolles at 12.30 and reached Bordeaux at 12.40, where he stayed for further attention.

M. Verrier left Hendon at 6 a.m. and reached Calais at 7.57, a distance of 167 kms. He left at 8.13, but was brought down at Chateaufort, 462 kms. from Calais, where he damaged his machine.

APRIL 4TH.—Herr Hirth, on an Albatros biplane, Benz motor, left Gotha at 4.23 a.m. for Frankfurt (171 kms.), and arrived at 6.28 a.m. He left at 6.53 a.m. for Dijon (408 kms.), arriving at 11.15 a.m., and left for Marseilles (454 kms.) at 12.18, arriving at 4 hrs. 4 mins. 56 secs. p.m. Total distance, 1,083 kms., in 11 hrs. 42 mins.

M. Moineau left Bordeaux at 7.15 a.m., and was brought down again at Lezignan with engine trouble.

APRIL 5TH brought very bad weather. Herr Hirth was compelled to wait at Marseilles.

M. Legagneux (Nieuport) waited at Brussels, and M. Prevost (Deperdussin), who was with him, is reported to have abandoned his attempt. All the other competitors waited for better weather.

APRIL 6TH.—Herr Hirth left Marseilles at 8.45 a.m. and flew to the Tamaris control. After being duly checked, he started up again, but while still on the water, his floats became entangled in some fishing nets, and the biplane overturned, wrecking itself completely. Herr Hirth and his companion were rescued, but the machine had to be abandoned. This accident was most unfortunate, as Herr Hirth had made better time than M. Brindejone up to Marseilles.

The other competitors were still weather-bound with the exception of M. Brindejone, who flew to Genoa, apparently with the intention of returning to Monaco from Vienna or Rome.

(FROM THE SPECIAL CORRESPONDENT OF "THE AEROPLANE" AT MONACO.)

Monaco, April 4th.

Although no less than twenty-six entries have been received for the greatly-boomed "Rallye Aérien de Monaco," only one pilot has arrived at the moment of writing. Flying an 80-

h.p. Gnome-engined Morane-Saulnier monoplane, Brindejone des Moulinais put up world's records by his fine passage from Madrid, via Vittoria, Bordeaux, and Marseilles, on the opening day of the contest, but to-day's performance of the German pilot, Hirth, on an Albatros with a Benz engine gives promise of even greater things to come. Hirth left Gotha at 4.25 this morning, reached Frankfurt at 6.38, and left again at 7.11; arrived at Dijon at 11.15, and proceeded after a stay of 63 minutes; arriving at Marseilles at 4.04 this afternoon. The distance is 1,083 kiloms., or over 67 miles per hour, which is said to be just twice as fast as the quickest train between the two points. At the hangars, eleven of which have been erected on the new quay on the Western side of the promontory on which old Monaco and the Prince's Palace stand, all was quiet to-day. A rough breakwater of loose stone has been constructed, so as to form a small harbour, and this is to be used exclusively for the waterplanes. In one way this new scheme is good, because the main harbour and quay undoubtedly were very crowded last year, and there will be better opportunities for handling the machine clear of the crowd of sightseers, who are to be kept (if possible) on the other side of a fence. On the other hand, the waterplanes will be more or less out of sight except when actually flying, and public interest may wane accordingly.

Monaco (Sunday), April 5th.

Excitement ran high this morning in expectation of the arrival of Hirth, but word eventually came that bad weather prevailed at Marseilles, so that he could not make a start. The weather here to-day has been simply gorgeous; hot sun, a light to moderate breeze, and an almost smooth sea, so that the conditions 100 miles or so away must have been curiously different.

There has been no news of anyone else to-day, and the day has, in point of fact, been a blank so far as this contest is concerned. This afternoon a Coupe-Schnieder entrant was out for a short flight, and Michel (?) came over from Beaulieu on the machine with which he has been doing great business in passenger flights, making an extremely steeply-banked sharp diving turn that caused people to think he had views on the life of His Highness the Prince of Monaco, who was opening the exhibition of motor boats.—A. C. BURGOINE.

Our Schneider Cup Representative.

The Sopwith Schneider Cup machine was out for test on Southampton Water on Wednesday last, when it was found that the single central float was not satisfactory. In taxiing one of the wing tip floats became immersed, and the machine turned a somersault. Mr. Pixton was thrown out as the machine turned over and merely received a wetting, though he says it is by no means easy to swim in an aviation costume.

The machine was towed ashore and immediately sent back to the works for the single float to be replaced by two, which together will have the same capacity, but will give better stability on the water. By the time these notes appear the machine should have passed its flying tests, and if satisfactory it will at once be dispatched to Monaco. The machine is practically identical with the "tabloid" which Mr. Hawker flew, but it is fitted with a 100-h.p. Monosoupape Gnome.

Looping on a Standard Machine.

Writing on the subject of looping, Mr. J. L. Hall says that he did so because he felt it necessary to prove that a British-made machine would loop the loop as well as any French light-weight machine, and that without any extra strengthening, and he determined to put his conclusions to a test that would show the public that English machines were as well constructed as any foreign machines. As regards the loop itself, Mr. Hall says he found it very simple, and that the strain was enormously exaggerated. Centrifugal force held him in his seat so securely that he was able to turn off his petrol while upside down.

Mr. A. V. Roe, Mr. F. P. Raynham and their mechanics have examined the machine since, and have found everything in perfect order. Mr. Hall is to be congratulated on his pluck and on showing his faith in Avro construction by thus testing a machine which is perfectly standard in every way, and not strengthened anywhere with the intention of looping.

Flying at Sheffield.

During the last week Mr. Harold Blackburn, on his 80-h.p. Blackburn monoplane, has made numerous flights at Sheffield during a "Flying Week" organised by the "Sheffield Independent." On Tuesday, Mr. Blackburn made a fine flight over Sheffield at a height of over 4,000 feet in half a gale.

Early on Friday morning, Mr. Blackburn, accompanied by a lady passenger, flew to Chesterfield and back with the early morning edition of the "Sheffield Independent," circling the famous crooked spire of Chesterfield on the return journey.

Flying at Bognor.

The Curtiss Flying-boat was out piloted by Lieut. J. C. Porte, R.N., on three or four days last week. Messrs. Bonor and Hudson were passengers in turn. Lieut. Porte took the boat up and down the coast some forty miles or so on Friday, both boat and engine behaving splendidly.—A. B.

Mr. Hamel at Bath.

On Saturday last Mr. Hamel gave a very successful exhibition of flying and looping at Bath. 45,000 people paid for admission, and there were not more than 5,000 "deadheads" outside the ground, so that the financial side of the meeting must have been very satisfactory. Mr. Hamel finished up by giving a demonstration of tail-sliding. Afterwards Mr. Hamel flew back to Hendon with Mr. Duff—110 miles in an hour.

Mr. B. C. Hucks at Lincoln.

A visit from Mr. Hucks is an annual event in Lincoln. Last Wednesday, Friday and Saturday Mr. Hucks paid a third visit, this time to demonstrate looping. On Wednesday, in glorious sunshine, he first took up his two-seater and then on the looper made seven loops and flew upside down for half a mile, incidentally reaching and passing his 250th loop. A lady friend of Mr. Hucks was then given a long high flight interspersed with sundry steep banks and dives. After this display of feminine "nerve," passenger-flight booking was brisk. On Friday, again in ideal weather, Mr. Hucks added six loops to his total and gave five first flights. On Saturday there was an immense crowd, inside and out. The wind was choppy and across the aerodrome, which made starting and landing difficult, especially with passengers. Twelve loops were made, and once Mr. Hucks flew inverted for over a mile. Four passengers were carried, including two ladies who were the first female cyclists in Lincoln, and are now the first to fly.

This week Mr. Hucks is at Bristol. On Easter Monday he will be at Coventry. On Easter Tuesday and on Thursday, April 16th, and Saturday, April 18th, he will loop at Leicester.

A Book Worth Reading.

In "Flying; Some Practical Experiences," Messrs. Gustav Hamel and C. C. Turner have produced a book of great merit and of extreme interest, which should immediately take its place on the shelves of all those interested in aviation, though it would probably do more good if forcibly applied to those at present uninterested in flying. Starting with a consideration of the characteristics desirable in a pilot and with the process of teaching to fly, a chapter follows dealing with the prevention of accidents which should be read, marked, learnt, and inwardly digested by every pilot, would-be pilot, mechanic, and constructor.

The authors deal with cross-country flying, trick flying, altitude flying, with the influence of weather on flying, with the relative advantages of different types of aeroplanes, with naval and military flying, and with the future possibilities of the art. The views expressed are the outcome of the authors' very wide experience, and as such are worthy of every respect, yet there is a complete absence of dogmatic statement, and a thorough recognition of how much there is yet to learn is evident throughout.

Special articles by such authorities as Mr. Henri Farman, "Accidents and their Prevention"; Chev. Guglielmo Marconi, "Wireless for Aeroplanes"; and J. Elrick Adler, F.R.C.S., "Medical Aspect of Aviation," are included.

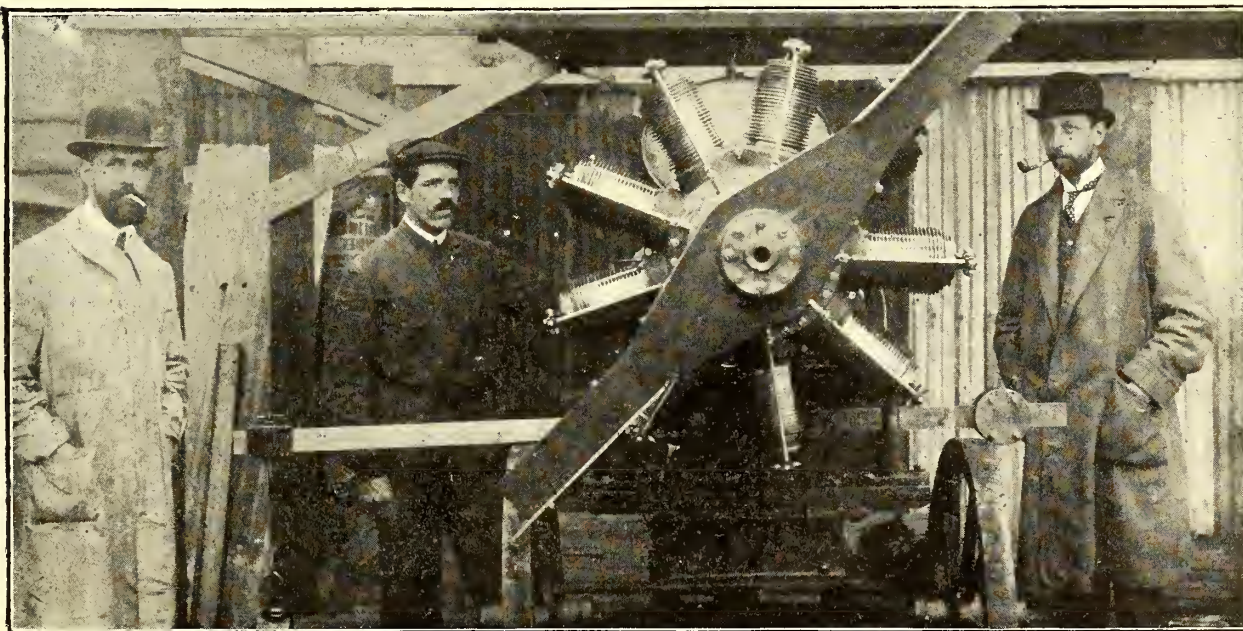
The volume is superlatively illustrated by reproductions of photographs of and from aeroplanes and of a number of photos from balloons, and the get up of the whole volume is above reproach. At the price, 12s. 6d., it is as good value as any book one has met.—W. H. S.

New Nieuport Hydro-Aeroplanes.

The Nieuport (England), Ltd., supply the following particulars of three new types of "Nieuport" hydro-aeroplanes which have just been produced. The first of these is similar to that flown by M. Legagneux when making his height record but fitted with floats. With an 80-h.p. Le Rhone motor and fuel for three hours this machine has a speed of from 77 to 80 miles per hour. This type will compete at Monaco.

The second machine is also an 80-h.p. Le Rhone, single-seater, but of larger surface, and will carry six to eight hours' fuel and oil at a speed of about 70 miles per hour. One of these machines will be piloted by Comdr. Delage during the forthcoming French Naval Manœuvres.

The third is of still larger span and surface, and with the same motor carries pilot and passenger and fuel for five to six hours at 68 to 71 m.p.h. This type will also appear at the French Manœuvres, piloted by M. Levasseur.



The first British-built Gnome engine, a 100-h.p. monosoupape, which has just passed highly successful tests.

Flying at Hendon.

Despite threatening weather, some very good flying was done on Saturday. The usual exhibition and passenger flights were made by Messrs. Noel, Carr, Birchenough, Strange, Howarth, and Lillywhite on Grahame-White biplanes, and by Mr. Hall on his Avro, and Mr. Goodden on a rebuilt Caudron with a new 60-h.p. Anzani engine. There were ten entries for the speed handicap and so five machines were put down for each heat, in the first of which Mr. Goodden flew the Caudron, Messrs. Cripps, Birchenough, and Strange on Grahame-White box-kite biplanes, and Mr. Carr on "Lizzie." The order of finish was Goodden, Cripps, and Birchenough. Things were rather alarming for a few seconds, for the finish was very close, and Mr. Cripps almost flew into the path of the second and third men by shooting up at a steep angle as he crossed the finishing line.

Mr. Hall flew his Avro in the second heat, and Messrs. Lillywhite, Howarth and Carr competed on G.-W. box-kites. Mr. Noel, who is unlucky at times with his machines, was deprived in turn of the use of the Maurice Farman and "Lizzie," the first through engine trouble and the second through a bent inter-plane strut. The other four competitors finished in the order named.

The final was between Messrs. Lillywhite, Goodden, Cripps and Hall. It looked like a very close finish between Mr. Hall and Mr. Lillywhite, but a throttle-wire broke on the Avro at pylon No. 5 on the last lap, forcing Mr. Hall to land just outside his own shed and leaving the race to Mr. Lillywhite, who staggered across the finishing line with about three cylinders misfiring, and landed precariously across wind, but quite safely, amid the cheers of the onlookers. It is always an achievement to win one's first race, and young Mr. Lillywhite's handling of the machine showed him to have the makings of a first-class pilot.

Earlier in the afternoon Mr. Carr looped several times on "Lizzie." At about 6.50 Mr. Hamel arrived from Bath with a passenger, having covered the 110 miles within the hour with a strong following wind.

The attendance on Sunday was better than on the previous day. Mr. Carr made four loops on "Lizzie," and Mr. Goodden gave a demonstration of quick climbing on the 60-h.p. Caudron, reaching a height of about 9,000 feet during a flight of half an hour. Mr. Hamel flew in his usual excellent fashion, looping and diving with every possible portion of the machine travelling first. Mr. Grahame-White took the Countess of Essex and Miss Ethel Levey for flights. Mr. Hamel's passengers included the Hon. Reginald Fellowes and Mr. Charteris. Exhibition and passenger flights were made by Messrs. Noel (Maurice Farman), Birchenough (G.-W. biplane), and Strange (G.-W. tractor biplane).

Flying at Brooklands.

Last week was a busy one at Brooklands. On Monday the weather was bad and the Vickers gun-carrier was the only machine out. Incidentally this must have been the first of the Show machines to fly; it went out on the previous Friday. On Tuesday, M. Bidot, the chief Blériot pilot, took a Blériot 80 Gnome, two-seater, to Farnborough in about a 40 m.p.h. wind. In the afternoon Lieut. Collett, R.M.L.I., showed what the D.F.W. could do. M. Bidot was again out on a Blériot, having a better journey this time. A "B.E." paid its respects in the form of a spiral when passing over on the way to Farnborough. Another tractor biplane was seen heading in the same direction. The Vickers gun-carrier was out and carried in turn six passengers.

Wednesday saw the debut of the Gaskell Blackburn tractor biplane, which the pilot-designer-constructor wisely only taxied. Mr. Waterfall was out high on the Martinsyde. The Vickers gun-carrier, which had had its body altered experimentally, was tried in the morning, and as distinct improvement was noticed, the side area forward was cut down farther in the evening with good effect. In the afternoon Mr. Waterfall (Martinsyde), Lieut. Collett (D.F.W.), and Mr. Manton on Mr. Hucks' 80 Blériot were out as well.

On Thursday the schools were very busy. In the morning Mr. Waterfall went up to 3,000 on the Martinsyde, doing the first 2,000 in four minutes. Lieut. Collett and Herr Roempler were out on the D.F.W.s in the afternoon. Mr. Gaskell

Blackburn did his first hop. Mr. Manton was out on the Blériot. Messrs. Elsdon and Hinshelwood flew the Vickers Blériot excellently. The latter, though quite young, has the makings of a very fine pilot. Lieut. Lawrence, R.F.C., with a passenger, visited Brooklands on a "B.E." Herr Roempler on the D.F.W. just missed Mr. Merriam on a Bristol box-kite. The latter was on the ground. Someone remarked that fortunately his tyres were not pumped up, but the D.F.W. really missed him by four or five feet.

On Friday the schools were again busy. In the morning Mr. Waterfall was out. In the afternoon Capt. Darbyshire, R.F.C., an old Vickers pupil, visited Brooklands on a "B.E." and left again for Farnborough. Herr Roempler, with Herr Frankl as passenger, flew to Farnborough and back without stopping, and Lieut. Collett went there too. When coming back the latter's engine gave out and he landed in a large ploughed field, where the machine had to stay the night. Mr. G. Blackburn on his own machine, and Mr. Alcock on the Sunbeam-Farman, were out in the evening.

On Saturday the Vickers gun-carrier, which now has broad wooden struts placed far aft between the tail booms to give fin area, came out and performed beautifully. Lieut. Collett returned on the D.F.W. in the morning. Machine and pilot quite well. In the afternoon Mr. Barnwell on the Vickers gun-carrier, Mr. Waterfall on the Martinsyde, and Mr. Alcock on the Sunbeam-Farman, all evolved, as did Mr. Merriam on a Bristol box-kite. Mr. Llan Davies on his 50-h.p. Avro went up 2,500 feet. Lieut. Collett had engine trouble, and made three terrific bumps on landing without evil result. Mr. Raynham flew the new Avro (100-h.p. A.B.C.) for a short time. The De Bolotoff crew were engine testing behind closed doors.

On Sunday bad weather stopped flying early, but Mr. Barnwell flew the Vickers gun machine in splendid style, and Mr. Manton performed well on the 80 Blériot.

All the Brooklands sheds are being done up and are all reported full for the Summer, when it ought to be as busy as any aerodrome in the country in the way of practical work. There should be a good dozen machines in for the Easter Monday race.

Flying at Shoreham.

A great deal of work has been done at the Shoreham Aerodrome during the past week, both the Pashley School and the Shoreham Flying School taking full advantage of good weather. Another pupil, Mr. Nichol, has joined the former school, whose Farman machine has been averaging four hours' flying each day. On Wednesday and Thursday last week Mr. Cecil Pashley made exhibition flights, his banking near the ground and spirals over the sheds being particularly noteworthy—from several points of view.

At the Shoreham Flying School, Mr. W. H. Elliott has been testing the home-made biplane, which, last Wednesday, he took for its first circuit. Since then he has flown with all the pupils in turn. The engine is not yet giving its full power, but on Friday, with Mr. Aikman as passenger, he flew to Worthing and back at 1,000 ft.

On Friday last, Lieut. Abercromby arrived from Farnborough on an Avro (50-h.p. Gnome). As he was leaving, Lieut. Wilson, on a Farman (80-h.p. Gnome), also from Farnborough, landed, and later Capt. Robin Grey was seen approaching on another Avro (50-h.p. Gnome), but he did not recognise the aerodrome and continued to Brighton before he realised his mistake. On his return, owing to his goggles being covered with oil, and slight trouble with his warp, he landed in a field near by. Later both returned to Farnborough. Capt. Grey reported that the River Adur, which flows along the east side of the aerodrome and is marked very small on the map, looks so big at high tide that one thinks it cannot be the same river. Cross-country pilots please note!

On Saturday next, April 11th, there will be a flying exhibition at Bognor, Pashley Bros. having arranged to compete in an aeroplane v. motor-car race on the sands. The course is 2½ miles in length, out and back, and the speed of the Farman is about 45 m.p.h. Mr. Cecil Pashley will pilot the Farman and Mr. V. C. M. Gonne, nephew of Mr. Henry Gonne of the Shoreham Aerodrome, the car. Afterwards exhibition and passenger flights will be made and motor-car and motor-cycle races will take place.—E. L. D.

The Week's Work.

Weather Report for Week Ending April 5th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Imposs.	Very Windy	Very Windy	Fair	Windy	—	—
Caishot ...	—	—	—	—	—	—	—
Eastchurch ...	Windy	Fair	Fair	Fair	Fine	Fair	Very Windy
Hendon ...	Rain	Wind	Wind	Fair	Fair	Rain	Windy
Liverpool ...	—	—	—	—	—	—	—
(W'loo) ...	Wind	Rain	Fine	Breezy	Fine	Wind	Gale
Montrose ...	Mist	Gale	Showers	Cloudy	Bright	Bright	—
Salisbury Plain ...	Imposs.	Fair	Good	Very Good	Good	—	—
Shoreham ...	Fine	Fine	Good	Ideal	Good	Wind	Imposs.

School Reports.

Brooklands.—At BRISTOL SCHOOL: Instructor during week: Mr. Merriam. Pupils with instructor on machine: Mr. Jacques (2), Lieut. Smythies (new pupil) (9). Strts or rolls alone: Sgt Deane (1), Mr. Jacques (1). 8's or circs alone: Sgt. Deane (6), Mr. Jacques (1). Machines in use: Two school biplanes. Mr. Merriam long cross-country flight via Weybridge, Chertsey and Addlestone on April 2nd.

At VICKERS SCHOOL.—Instructors during week: Messrs. Barnwell, Knight, Elsdon. Pupils with instructor on machine: Lts Acland (2), Leighton (6), Underhill (10), Comte FitzJames (3), Capt Phillips (4), Mr. Wilberforce (1), Mr. Hurst (1) (all biplane). 8's or circs alone: Lts Acland (2), Leighton (3), Comte FitzJames (9), Mr. Wilberforce (8), Mr. Hurst (3) (all biplane). Mr. Hinshelwood (2) (monoplane). Machines in use: Two school biplanes, one mono.

On SUNBEAM-FARMAN, Mr. Alcock with Mr. L. Bailey to 2,000 ft for exhibition flight on Thursday. Across country high during Friday. Across country with Miss C. Pullin, also for 1 hr across country with Mr. Hipwell on Saturday.

Eastchurch.—The Hon. M. Egerton was out every possible day on his 50-h.p. Short and made some fine flights. Professor Huntington made a couple of short flights on Saturday.

Hendon.—At GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Strange, Howarth, Birchenough and Lillywhite. Pupils with instructor on machine: Messrs. Smiles, Parker, Robinson, Clarke, Lowe, North, Moore, and Prince Sapieha. Strts alone: Messrs. Kershaw, Stewart, Weber, Dunne, North, Parker, Major Piercy and Prince Sapieha. 8's or circs alone: Messrs. Kershaw, Stewart, Dunne, Parker and Major Piercy. Machines: G.-W. biplanes, Blériot monos.

At W. H. EWEN SCHOOL.—Instructors during week: Messrs. F. W. Goodden and W. T. Warren. Strts or rolls alone: Messrs. Carruthers and Verney. 8's or circs alone: Lieut. Kinnear and Mr. J. Bankes-Price. Certificate taken during week: Mr. J. Bankes-Price. Machines in use: 35-h.p. Caudron biplanes. On Friday afternoon Mr. Goodden took up 8 passengers severally on 60-h.p. British Caudron to 2,000 ft.

At BEATTY SCHOOL things quiet during past week owing to cylinder of Gyro motor giving out. Will shortly be replaced by 50-h.p. Gnome. On Thursday "Moorhouse" Blériot out piloted by M. Marty, and on Friday and Saturday mornings Mr. Bjorkland straight on same, handling it well. School will have 2nd Wright (40-h.p. Wright motor) ready this week and small single-seater Wright by end of week. Latter machine will be fitted with 85-h.p. single-valve Gyro engine.

At HALL SCHOOL.—Instructor during week: Mr. J. L. Hall. Pupils with instr on machine: Miss d'Elsa, Messrs. Palmer, Arcier, Haines, Roy Gibson, J. Rose, and Allen. Strts or rolls alone: Miss d'Elsa, Messrs. Roy Gibson, Allen, Haines, and J. Rose. Machines in use: Avro and Caudron biplanes; Blériot and Deperdussin monos. Twenty-five passengers carried on Avro. Several cross-country flights made. Mr. Hall in air about 12 hours during course of week; on Saturday took Miss d'Elsa cross-country trip at 2,500 ft to Neasden and back. School will be closed from April 9th till April 14th.

Liverpool (Waterloo).—Instructor during week: Mr. H. G. Melly. Pupil, strts or rolls alone: Mr. Crean, now called up for military service. Machine in use: Blériot mono. Mr. Melly testing Isaacson, Wednesday, 10 mins. and 5 mins., with passenger. Same on Friday, 11 mins. and 5 mins.

Shoreham.—At PASHLEY SCHOOL.—Instructor: Mr. C. L. Pashley. Pupils with instructor on machine: Messrs. Hale, Mortimer, Willett, Grey, Nichole (new pupil). Strts or rolls alone: Messrs. Grey (8), Hale (8). 8's or circs alone: Mr. Hale (4), good progress. Machine: Propeller biplane (50-h.p.).

At SHOREHAM FLYING SCHOOL.—Instructor during week: Mr. W. H. Elliot. Pupils with instructor on machine: Messrs. Purnell, A. Maskell, P. H. Maskell, Aikman, Gates, Sholto-Douglas, on Henri Farman. Strts or rolls alone: Messrs. A. Maskell, P. H. Maskell, Aikman, Purnell and Gates, on Avro. Machines: Propeller biplane (50-h.p. Gnome), Avro (45 Green).

Salisbury Plain.—BRISTOL SCHOOL: Instructors during week: Messrs. Jullerot, Voigt and Stutt. Pupils with instructor on machine: Lts George (5), Bonham-Carter (5), Myburgh (4), Rabagliati (7), Capt. Walcot (4), Messrs. Hay (11), Parker (10), Chambers (7), Lts Bolitho (3), Harman (1). Strts or rolls alone: Lt Harman (3), Capt Walcot (1), Lts George (3), Bolitho (2), Myburgh (2), Bonham-Carter (2). 8's or circs alone: A.M. Locker (1), Lts George (6), Bolitho (3), Harman (6), Rabagliati (4), Myburgh (3), Bonham-Carter (3), Capt Walcot (1). Certificate taken during week: Lt George, flying splendidly. Machines: Three biplanes, one tractor biplane.

A Fire-extinguishing Dope.

The Cellon Co. have now produced a dope which is actually fire-proof while in its liquid state. The writer has seen this dope poured over a flame in which case it acts as an effective fire extinguisher. Hitherto most dopes, though non-inflammable when the liquid has evaporated, have been highly inflammable while in the liquid state, so it will be seen that a considerable advance has been made in this material.

In connection with Cellon, it is interesting to note that the Desoutter Benefit Fund profited to the extent of £11 5s. through little paper gliders sold at the Cellon Stand at the Aero Show. Some of these gliders bearing the signatures of famous aviators fetched as much as 5s. each, but the majority were sold at 3d., the whole of the money going to the fund.

SOUTH-EASTERN & CHATHAM RAILWAY.

THE MOTOR BOAT RACES

AND EXHIBITION

AT

MONTE CARLO

(April 5th to April 20th.)

Special Express Services to the Riviera
leave Charing Cross and Victoria daily.

∴ Via Dover - Calais and ∴
Via Folkestone - Boulogne.

Through Carriages and Sleeping Cars from
Calais and Paris.

Fast Turbine Steamers to Calais and
Boulogne.

For full particulars of Fares and Services apply at any of
the S.E. & C. Railway's London Terminal Stations.

FRANCIS H. DENT,
General Manager.

CRITCHETT WELDING & ENGINEERING CO., WELDING & BRAZING .. SPECIALISTS ..

Aluminium Welding Guaranteed.

Wire, Write or Phone

Tele. Address: Flexicablo, Watloo, London. Phone: 2424 City.

Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.

GODDARD'S MOTOR, MOTOR-CYCLE, and CYCLECAR HOUSES.



ft.	ft.	ft.	£	s.	d.
8	6	7½ high	3	16	0
10	7	8	5	8	0
12	8	8	6	15	0
14	9	9	8	17	6
15	10	9	10	0	0

Carriage Paid.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned ¾ in. T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing.

Large Illustrated Catalogue with prices of other houses, post free.

Makers of Portable Wooden Buildings of all descriptions.

GODDARD'S, Ltd., Crown Works, Vicarage Lane, Ilford, Essex.

Telephone: 880 Ilford.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.

For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.

Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

THE Proprietor of Patent No. 9445 of 1911 for "Improvements in Aeroplanes" is desirous of disposing of the patent rights or of negotiating for the grant of licences to work thereunder.—All inquiries should be addressed to JOHNSONS & WILCOX, 47, Lincoln's Inn Fields, London, W.C.

PATENTS.—How to Patent Inventions. Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

MULTI-CELLULAR AEROPLANE HAVING AUTOMATIC STABILITY APPARATUS.—The Proprietor of the Patent No. 9128 of 1911, and Patent of Addition No. 9884 of 1911, for the above, is desirous of entering into arrangements by way of licence and otherwise, on reasonable terms, for the purpose of exploiting the same and ensuring their full development and practical working in this country.—Address all communications to HARRIS & MILLS, Chartered Patent Agents, of 40, Chancery Lane, London, W.C.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL, at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

W. H. EWEN SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

LEARN to Fly at the Premier English Aviation School. Tuition given on Avro tractor biplanes, Blériot monoplanes, Caudron biplanes, Deperdussin monoplanes. Moderate inclusive fees, flying and constructional. **PASSENGER FLIGHTS AT MODERATE CHARGES.** Exhibitions of "looping the loop" and upside-down flying, etc., given by J. Lawrence Hall.—For full particulars apply to HALL AVIATION Co., Aerodrome, Hendon, N.W.

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.
Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.

LIVERPOOL AVIATION SCHOOL, Waterloo, near Liverpool.—Tuition, Passenger Flights, Exhibitions, on Blériot monoplanes (3). Melly's infallible release gear. Terms and prices on application.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, THE AEROPLANE, 166 Piccadilly, W.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—THE BLACKBURN AEROPLANE COMPANY, Leeds.

CAUVIERE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, THE INTEGRAL PROPELLER CO., LTD., 307, Euston Road, London, N.W. Telephone: 912 North. Telegrams: "Avirop," London.

A GENUINE BARGAIN.—First reasonable cash offer gets 7 feet aeroplane propeller, new and in perfect condition; must sell at once.—N. GIBBS, "Gotha," Morden Hill, Blackheath.

ENGINES.

SEVERAL Bréguet machines, machinery, tools, and the following engines for sale:—1 130 H.P. SALMSON, direct drive; 2 130 H.P. SALMSON, with reducing gear; 4 85-90 H.P. SALMSON.—Apply to the Receiver and Liquidator for BRÉGUET AEROPLANES, LTD., 72, King's Street, Hammersmith, W.

EMPLOYMENT.

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—WULFFING, Aeronautical Engineer, 2, Barclay Road, Walham Green Station.

WANTED, capable welder.—Apply, THE SOPWITH AVIATION CO., LTD., Kingston-on-Thames.

WANTED, a wire-splicer; also fitters; aeroplane experience preferred.—Apply, GRAHAM-WHITE AVIATION CO., LTD., London Aerodrome, Hendon, N.W.

WORKS Manager required; must be a practical man, with thorough knowledge of the latest steel and wood aeroplane practice, accustomed to Government work, able to handle men, good organiser, and systematic worker.—Apply, stating salary required, age and experience.—Box 556, c/o THE AEROPLANE, 166, Piccadilly. Or candidates wishing their applications to be treated in confidence may write the Editor, THE AEROPLANE, marking letters "Personal."

EXPERT Gnome mechanic requires situation. All overhauls to any make of engine, and would give price for single job.—B., 235, Cricklewood Broadway, N.W.

DRAUGHTSMAN requires situation; 30s. Good workshop and office training. D.O. experience with large aeronautical firm.—Box 555, THE AEROPLANE, 166, Piccadilly, W.

WANTED, one or two experienced welders for aeronautical work; men experienced in aluminium welding preferred.—Apply Box 554, THE AEROPLANE, 166, Piccadilly, W.

ENGINEER, French diploma, Dutch nationality, trained draughtsman and pilot, English, fluent French and German, wants position in automobile or aviation firm.—Address, FERNAND BORIE, Rue Coulaingcourt 59, Paris.

KEEN aviator, 5 years' experience of construction, pilot of monoplanes and biplanes, seeks situation in England.—Write A. MELIN, 8, Boulevard de Porte-Royal, Paris.

WANTED, at once, certificated pilot for biplane flying boat (Curtiss) to proceed to South Africa. State experience and terms.—Box 557, THE AEROPLANE, 166, Piccadilly, W.

PILOT-DESIGNER, experienced biplane, monoplane, and waterplane flyer, also designer and constructor of several successful machines (one shown at Olympia), requires appointment.—Letters, Box 553, THE AEROPLANE, 166, Piccadilly, W.

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—W.M. MALLINSON AND SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1'6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.

MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MODEL aeroplanes and accessories. Send stamp for our illustrated catalogue. Models or parts made to customers' own designs.—MURRAY, SON & CO., 387a, High Road, High Cross, Tottenham, N.

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

'Phone: Kingston 869.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our New Illustrated Models Catalogue now ready, Contains Sopwith Tractor, Deperdussin, Blériot, Canard, Clarke Mono, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic rod. per doz. yds

S. J. KEMP & Co.,

CROWN WORKS, Kingston-on-Thames.

(Many Years Head Model-maker to Messrs. T. W. K. Clarke & Co.)

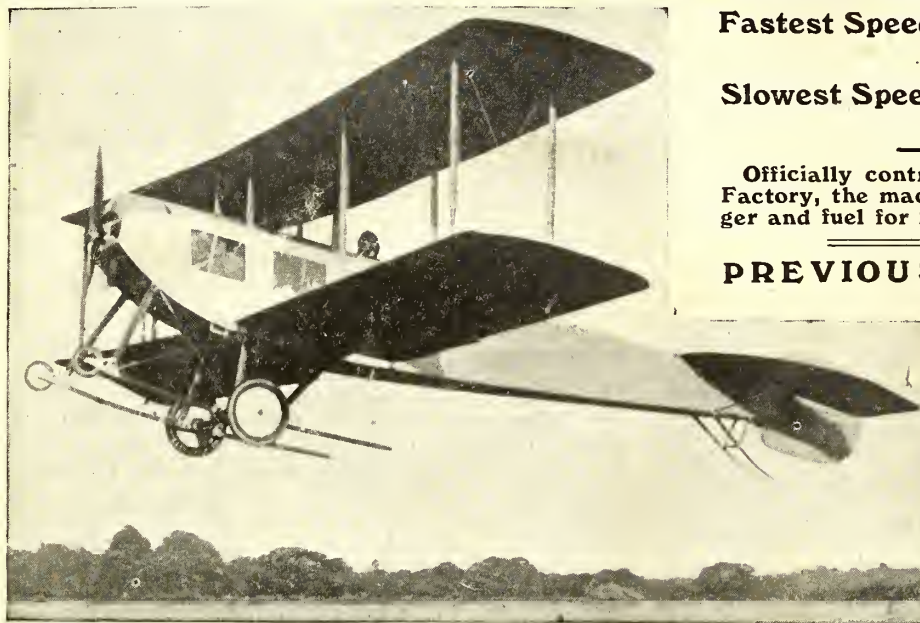
Every Requisite for Model Aeroplanes. Send 1d. for List.

Models of Every Description built promptly.

Phone 321 Kingston. Telegrams "Garage, Kingston-on-Thames."

EFFICIENCY is the characteristic of **SOPWITH AEROPLANES.**

The Latest **SOPWITH BIPLANE** (80 h.p. Gnôme) beat all **WORLD'S RECORDS FOR EFFICIENCY.**



Fastest Speed 92 miles
(154 kms.) per hour.
Slowest Speed 36.9 miles
(61 kms.) per hour.

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

PREVIOUS RECORDS on the preceding type of **SOPWITH BIPLANE** (80 h.p. Gnôme).

British Height Record (Pilot alone) 11,450 ft.
British Height Record (Pilot and 1 Passenger) 12,900 ft.

British Height Record (Pilot and 2 Passengers) 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works: **KINGSTON-ON-THAMES.**

Telegrams:
SOPWITH, KINGSTON.

EASTER FLYING AT HENDON.

April 9 to 13. SEVENTH LONDON AVIATION MEETING (5 days) Opening of Hendon Summer Season

THURS., April 9th (First Day) from 3 p.m. till dusk. Speed and Altitude Tests, Exhibition and Passenger Flights by well-known Hendon Aviators.

GOOD FRIDAY, April 10th (Second Day), 2 p.m. Twenty-Mile Speed Contest (two heats and final) for the "Shell" Trophy and 50 Gns. Demonstrations of "Looping the Loop" and Upside-down Flying on Monoplanes and Biplanes by Mr. Gustav Hamel and other Hendon Aviators.

SATURDAY, April 11th (Third Day), from 3 p.m. Twenty-Mile Cross Country Race for the Barclay Walker Cup and 30 Sovs. Demonstrations of "Looping the Loop" by Hendon Aviators. Quick Starting Competition for the Hendon Cup.

SUNDAY, April 12th (Fourth Day), from 3 p.m. Special Flying Displays by Mr. Gustav Hamel, and Exhibition and Passenger Flights by Hendon Aviators.

BANK HOLIDAY, April 13th (Fifth Day), 12 noon. Grand Speed Handicap for the Barclay Walker Trophy and 80 Sovs. (two heats and final). Demonstrations of "Looping the Loop" and Upside-Down Flying by Mr. Gustav Hamel and other Hendon Aviators.

Races Every Thurs. & Sat. from 3.30 p.m. Special Exhibition and Passenger Flights, every Thursday afternoon, from 3.0 p.m. till dusk (weather permitting)

Passenger Flights daily from £2 2s. 0d.
Admission 6d., 1s., 2s. | Motors - 2s. 6d.
Children Half-price. | (Includes chauffeur.)

London Aerodrome, Hendon, N.W.

Proprietors: The Grahame-White Aviation Coy., Ltd.



THIS is an illustration of the Cover of the 1914 Fixture List, which contains numerous illustrations of the Flying at Hendon, a complete list of Fixtures and Events for 1914, and particulars of Passenger Flights, Routes to Hendon, Season Tickets, etc. Free on application to London Aerodrome Offices, 166 Piccadilly, London, W.

"THE AEROPLANE," APRIL 16, 1914.

THE AEROPLANE

12
WEEKLY

Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, APRIL 16, 1914.

No. 16

GOOD LUCK.



(Photograph by E. Lovell Smith, Richmond.)

The Sopwith Single-seater Waterplane, 100-h.p. Monosoupape Gnome, the only British built representative in the Schneider Cup Race. She is here shown after her first test in the Thames above Teddington Lock. All wish good luck to her and her pilot, Mr. Pixton.

The "Bristol" **Flying Schools**

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying is equipped not only to train the novice, but also to give extra practice to those who have already taken their certificates. For terms, etc., apply to the Beatty School of Flying, Hendon Aerodrome, London, N.W.

Tuition on Handley Page Monoplane & Wright Biplanes

£75.

Special terms to Naval and Military Officers.
 (Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

Beatty School of Flying,
 London Aerodrome,
 Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: ALERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Prospects of a Career in Aviation.

In every walk of life there seems to be a large number of people who regard the editor of a newspaper as a being who is omniscient so far as the special subject with which his particular paper deals is concerned. From the general practitioner buried in a country district who writes to the editor of "The Scalpel" for advice on the latest theory as to the possibility of infecting human beings with epizootic lymphangitis, down to the servant girl who writes to "Aunt Jemima" of "Our Happy Home" inquiring whether etiquette forbids her scratching the face of the "person" whom she meets walking out with her "young gentleman," all sorts of people apply to editors for advice, and, to the credit of editors as a species be it said, the advice given is generally based on sound reasoning. This, be it noted, is not because the editor knows anything in particular himself, but because, if he is fit for his job, he knows where to go for the required information.

Those who are keen on flying are no exception to the general rules of humanity, and consequently part of one's daily task in this office is the answering of letters from young men of all classes who want to know whether there is any prospect of making a life's career out of flying, and especially whether there are possibilities in the Royal Flying Corps. The inquirers range all the way from officers in one or other of the Services down to boys at school, and include quite a number of parents who want to know whether they should obstruct or assist a son's desire to fly, or to enter the aeroplane industry.

So far as those who merely wish to enter the industry are concerned, the answer is fairly simple. Just how the development is going to work out, or how long it is going to take, one cannot even guess, but it must be obvious that the aeroplane industry is bound in time to be a huge business employing millions of capital and tens of thousands of hands. The big seaplanes of the future will be as big as ships, and yet there will be at the same time small machines to carry only one person, so that it will compare with the shipbuilding industry, and will work downwards to a parallel with the small boat-building trade, with the advantage that one needs to be near the sea or a river to use a boat, whereas aeroplanes can be used from any field, and therefore should be more used than small boats. Also, owing to the congestion of our roads with heavy traffic, many aeroplanes will be used for the work done by family motor-cars to-day.

Admitting, then, that the business is going to become a great national industry, the young man who learns to fly now will become just what his ability makes him. He may become a kind of aerial taxi-driver. He may become an engine tuner, or an erector in a workshop. He may become a Society idol as an exhibition flier or a mere aerial clown at country fairs. He may be the first man to fly "Round the World in Thirty Days," or he may be the first aviator to be drowned in the Dead Sea. He may become the head of an "aerial armament ring," controlling millions, or he may end his days packing wire-strainers in greasy paper at a few shillings a week and telling all who will listen to him how he once won the Aerial Derby. I know clever men in the motor trade who, because of some queer kink, are only earning a few shillings a week though they have been in it from the start, and I know men who are both rogues and fools who are making

thousands a year out of it. Still, in all trades, the really good men reach the very top, and the successful rogues get nearest to them, and the aeroplane industry is not likely to be an exception. It is worth any young man's while to have a try at it, for there is always room in a growing business. And, anyhow, it is not so crowded as most others. Think of the number of decently educated young men who are tending switch-boards in electric power stations at a pound or thirty shillings a week, with no prospects of a rise. With very little training they could earn at least twice as much at the bench in an aeroplane factory, and would have a rapidly expanding industry before them. If willing to work their prospects should be excellent, for the hardest thing in the world to find is a man who likes work.

The Military Prospect.

When one is asked about prospects in the Royal Flying Corps it is harder to answer with any hope of guessing right. No man knoweth the minds of the War Office equivalent for Mr. Kipling's "Little Tin Gods on the Mountain Side." We are told that every soldier carries a Field-Marshal's baton in his knapsack, but I also recall an incident which occurred when the Wexford Militia were being dispatched to garrison Dover, or some such "foreign" port, at the time of the Boer War. The men had celebrated their mobilisation in suitable manner. They marched through the town cheering lustily for Kruger—their "disloyalty" was duly emphasised in the English Press, though in fact they cheered him because he was the prime cause of the war to which they innocently hoped they were going. Then they were packed into the train, bar one man who sat on the footboard with his feet on the platform, cuddling his rifle and drunkenly singing "The Boys of Wexford"—a cheerful rebel air much in vogue as a quick-step among some of our best fighting regiments. To him came a subaltern who said persuasively, "Ah, get into the train out o' that! Come on off to the front and we'll make a Field-Marshal of you." "Field-Marshal, is it?" replied the Tommy, "Begob, ye'll be more like to make me a gory casualty."—Which shows there is another side to the picture.

However, there must undoubtedly be prospects in the R.F.C., for the Corps must grow, and those who enter it now must in the nature of things grow with it, provided always those in authority do not adhere rigidly to the rules first laid down for the organisation. It is only on the assumption that the regulation decreeing that after four years' flying an officer must rejoin his unit will be abolished that one can see any career at all for a military aviator. And it must be remembered that the repeal of that regulation depends on whether it is found in practice that a man's nerve will stand more than four years' flying.

Whether the average man's nerve survives that period or not depends almost entirely on what he has to fly. If he is compelled to fly machines which he knows to be unstable and strongly suspects to be unsafely constructed, his nerve must go long before his four years are up. But if proper steps are taken now, and at once, to foster the development of stable and safe machines, there is no reason why a man should not fly as long as he can ride a horse, or even longer, for one can

drive a car long after one is too old and stiff to ride, and flying will in time be less nerve-racking than driving a car.

On the assumption that the four-years' rule is to stand immutably, there are only two inducements to Army officers to join the R.F.C., one is the opportunity for adventures, the other is the prospect of higher pay—one might, perhaps, add a third, the prospect of being a popular hero. None of these inducements is likely to result in the best and most desirable type of officer joining the Corps. The first will bring in a number of the "wild" type of young officer, excellent men on active service where their recklessness can be used to advantage, but a continual worry to their squadron commanders in time of peace, a disturbing element to the general discipline of the Corps, and one which is not likely to earn it a good name with the rest of the Service. The second may result in producing men who simply scheme to draw their pay and do as little else as possible, endeavouring to do their four years safely and comfortably, and hoping to leave having saved money, or, at any rate, having paid their debts. The third type produced is obviously undesirable.

In no case is there any inducement to the cultivation of *esprit de corps*. An officer who is going back to his regiment in four years' time still thinks of himself as being of that regiment; he can acquire no sentimental attachment to the R.F.C., and sentiment is worth a lot when a corps has to be brought to the highest pitch of efficiency.

If things do not go quite as they should in the R.F.C., what will be the good of worrying if one will be back with one's own show in two or three years, where everything goes like clockwork, where the men are under proper discipline and give no trouble, where one has a comfortable mess with properly trained servants, where one's working hours are reasonable, and where one is a pukka soldier and not a kind of aerial bashi-bazouk? That is the attitude of mind an officer may very reasonably fall into unless he can see prospects of advancement by remaining in the R.F.C. indefinitely, and it is not a healthy attitude, either for the officer or for the men under him.

Of course, as a very obviously ignorant civilian, it is a confounded piece of impertinence for me even to suggest anything which might possibly improve matters, and I know something of the opinions of learned staff officers on these newspaper chaps who don't know what they are talking about. Still, "out of the mouths of babes and sucklings," you know, and lookers-on see most of the game, and quite a few things prophesied in these pages have duly come to pass, and, anyhow, I gather that some modification of the four years' regulation has been under discussion for some time, so perhaps I may "fluke an inner" with one or two suggestions.

Be it remembered, I do not even hint that there is anything wrong with the R.F.C. as it is to-day. Considering its embryonic state, and the chaotic conditions under which every squadron has had to do its work hitherto, the efficiency of the personnel is extremely high. Also, those officers who form the present nucleus corps have all joined because they realise the immense importance of aviation in modern warfare. I merely offer a suggestion or two, very diffidently indeed, in the hopes that with the growth of the Corps the best possible type of officers may be induced to join in the future.

In the first place, owing to the necessarily irregular nature of the work, much flying one day, no flying the next, chronic scarcity of machines, and so forth, it is almost impossible to lay down a regular routine, and the trained soldier is not tempted by the idea of forgetting his regular work for four years and then going back to his regiment. I have heard an officer of the Line refer contemptuously to the R.F.C. as a mixed crowd without any prospects who live in uncomfortable messes and forget to be soldiers. That is the sort of notion one wants to dispel.

Would it not be possible to appoint officers permanently to the R.F.C., but attaching them at intervals of 18 months for a six months' course of ordinary soldiering to an infantry unit? The six months' rest from flying would probably do them good also. There is, of course, the difficulty of pay. A man is not going to descend willingly from R.F.C. flying pay to the ordinary pay of the Line, but if he remained an officer of the

R.F.C. attached to an infantry battalion there would be no particular hardship in his giving up his flying pay, and drawing the regimental pay of the R.F.C.—12s. per diem, I believe, which is a shade more possible than the 5s. 3d. a day paid to a second lieutenant of infantry.

It might also be possible to deal with the R.F.C. as with, say, the West African Regiment, where, I understand, one year's service counts as two for pension, so that after five years' flying an officer might transfer to another corps, if he felt unfit for further flying—or if family responsibilities so demand—and would then have the same qualifications for pension as if he had served ten years in the Line. Surely serving in West Africa does not involve more risk or call for more self-sacrifice than does flying in its present experimental stage. Such a regulation could always be altered when it was proved that flying was less risky than jungle-trotting.

Also, it might be made clear that promotion in the R.F.C. would be largely influenced by good work done in the Corps. At present there is certainly an uncomfortable feeling that squadron commands will only be given in future to Staff College officers, and that the man who has worked hard for years has no prospects of rising higher than Flight Commander, while a Staff College graduate, who is only a theoretical flier, may be promoted over his head. It is obvious that a very fine flier may be a very bad disciplinarian, and very unfit to lead men—in fact, it seems more than likely to anyone who knows one kind of temperament common among fliers to-day, which is allied to that hopelessly impractical thing, the artistic temperament—but the Staff College temperament is frequently as closely allied to that of the University Don, or the examination-wallah, which is equally useless in a rough and tumble existence. In no branch of the Service is severe but just discipline more necessary than in the R.F.C., with its curious collection of soldiers and civilians in all ranks, and the good old-fashioned sufficiently stupid officer who cannot pass an examination, but who handles men by the Heaven-sent light of his own good nature, and not on any theory of eugenics, or the development of species, is apt to make a better C.O. than any theoretician, so long as he is not called upon to work out any original system of organisation.

Perhaps some little consideration of these points may suggest lines of future development which may bring the best class of regimental officer into the R.F.C. The wilder sort, who merely want to fly for the fun of the thing, may find a better opening for their superabundant energies in nigger-driving in Africa, and the purely mercenary or vain type are not wanted. The R.F.C. should pay its officers for the extra risk they take, and it should guarantee them a reasonable chance of a career.

Civilians in the R.F.C.

The case of the civilian joining the R.F.C. as an officer for four years' service is even more difficult. It rather appears as if the authorities do not want civilians in the R.F.C. at all, except in the Reserve, though the general shortage of officers in the Army must make it necessary to appoint a certain number. Yet there seems no logical reason why it should not be made possible for the right type of civilian to become a soldier, provided the authorities want any civilians at all. If they do not, they should say so.

At present it is always possible that a civilian may, in return for good service in the R.F.C., be given a commission in the regulars, but that means two years' service with a regular unit before he can rejoin the R.F.C. During that period he has to live on his private means, plus the ordinary pay of the Line, which does not count, and when he returns to the R.F.C. a generation may have arisen which knows not this particular Joseph, and he will be a stranger to his C.O. and his mess. Here, as in the case of the regular officer, it might be possible to attach the newly-commissioned flier to an infantry unit for six months on his R.F.C. regimental pay, and make a soldier of him. A really earnest worker can do a lot in six months towards learning the theory of soldiering.

Provided always that due care is taken in selecting the civilian there is no reason why he should not make as good an officer as any of the rest. There are as good soldiers outside the Army as there are in it. Every great war proves it. I



LEARN TO FLY
at the
VICKERS FLYING SCHOOL
BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

VICKERS LIMITED,
Aviation Department, Vickers House,
Broadway, Westminster, S.W.



CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,
AEROPLANE WORKS
AND
FLYING GROUNDS—
EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9, MINSTER-ON-SEA.

Telegraphic Address :—"FLIGHT, EASTCHURCH."

know one who is now commanding a particularly distinguished corps, who went to South Africa as a trooper of Yeomanry and has since passed over the heads of those who were already company officers when he was a civilian.

But young men who are anxious to join the R.F.C. may save themselves much trouble and disappointment by examining themselves before they apply for appointment on probation. There is a distinct public school caste in this country, from which the vast majority of Army officers are drawn, and if one does not belong to that caste, it is as well not to think about entering the Army. A man need not necessarily have been to one of the big public schools to acquire the particular note, it is probably more a matter of up-bringing at home, or it may be simply hereditary, for many sons of poor but well-bred parents acquire it without having been well educated, but the public school tone is unmistakable and it is necessary if one is to be accepted as a man and brother in either Service. It is not snobbishness which makes it necessary, it is merely the fact that if men are to live together amicably they must

all bow to the same conventions, and must have more or less the same ideas of honour and decency, allowing a reasonable amount of idiosyncratic latitude.

A gentleman may be defined as "a man whom one can introduce to anyone without feeling anxious." There are more men who can stand up to that test in the British Services than anywhere else. That type of man is primarily the product of the British public school. There are, unfortunately, many exceptions in the Services and at the public schools, but they are the minority, and the man who is wanted and who is likely to get on in the R.F.C. is of the type of the majority.

If the civilian who wishes to join the R.F.C. is of the right type—he can test himself on that point as well as anyone else can—and if he can persuade various officials that his mental and physical outfit is adequate, he probably has quite as good an opportunity for a career in the Royal Flying Corps as has any regular officer—but that, as I have shown, depends on certain simple little alterations being made in the regulations as they now stand.—C. G. G.

The Royal Aero Club.

At the committee meeting on April 7th, the Marquess of Tullibardine, M.V.O., D.S.O., M.P., was unanimously elected chairman of the Club, and Col. H. C. L. Holden, C.B., F.R.S., was unanimously elected vice-chairman.

The following aviators' certificates were granted:—751, Lieut. Henry Allen Edridge-Green (6th D.C.O., Middlesex Regt.), (Grahame-White biplane, Grahame-White School, Hendon), March 23rd, 1914; 752, Jack Benjamin Graham (Grahame-White biplane, Grahame-White School, Hendon), March 23rd, 1914; 753, Cyril Frederick Lan-Davis (Avro Tractor biplane, Brooklands), March 24th, 1914; 754, Lieut. Victor Somerset Erskine Lindop (Prince of Wales' Leinster Regt.), (Grahame-White biplane, Grahame-White School, Hendon), March 24th, 1914; 755, Lieut. Wilmsdorff George Mansergh (Manchester Regt.), (Vickers biplane, Vickers School, Brooklands), March 25th, 1914; 756, Lieut. Arthur Sheridan Barratt, R.F.A. (Bristol biplane, Bristol School, Salisbury Plain), March 26th, 1914; 757, Sergt. Charles Albert Hobby, R.F.C. (Maurice Farman biplane, Central Flying School, Upavon), March 27, 1914; 758, Capt. Ernest Arthur Hunter Fell (12th Bengal Cavalry), (Bristol biplane, Bristol School, Salisbury Plain), March 27th, 1914; 759, Leading Seaman Stephen Thomas Clemens, R.N. (Maurice Farman biplane, Central Flying School, Upavon), April 2nd, 1914; 760, John Bankes Price (Caudron biplane, Ewen School, Hendon), April 3rd, 1914; 761, Lieut. Athelstan Key Durance George (1st Dorsetshire Regt.), (Bristol biplane, Bristol School, Salisbury Plain), April 3rd, 1914.

The following certificate was passed in America:—H. J. Webster.

Messrs. McClean and Ogilvie's Trip.

Mr. F. K. McClean and Mr. Alec Ogilvie have returned from their trip up the Nile on a Short waterplane. It will be remembered that they started from Alexandria on January 3rd, and after many stoppages on account of engine troubles reached Khartoum on March 23rd. During the trip through Egypt, a crew of three was carried in addition to the pilot, while through the Sudan the crew numbered two in addition to the pilot. Thirteen engine breakdowns were experienced and three bad landings were made.

The Aeronautical Society.

Official Notices:—1. Elections: Members—Christian H. Gray, Lieut. Baron Trevenen James, R.E. Student—Harold Grinstead. 2. Meeting: The twelfth meeting of the present session will be held on Wednesday, May 6th, at 8.30 p.m., when Dr. A. P. Thurston will read a paper, to be followed by a discussion, on "The Measurement of Air Speed."—B. G. COOPER (Sec.).

The Edinburgh Aeronautical Society.

The annual general meeting will be held at the Maitland Hotel, 33, Shandwick Place, on Friday, April 17th. All interested are invited to attend. A visit to Montrose Aerodrome has been arranged for Monday, April 20th. All members going must have passes.—G. T. COOPER, Hon. Sec.

Bristols in France.

It is now permissible to make public what has been known to some of us for some time, namely, that the licence for the construction of Bristol aeroplanes, at the instigation of the French Government, has been granted to the well-known firm of M. Louis Bréguet. It is, therefore, the more interesting to hear of excellent performances by one of these British machines when it was put to actual test to justify the favourable impression that the machines had given to the French authorities even before they had been seen in the air.

As has frequently been stated in this paper, British constructors have now little or nothing to learn from their one-time masters, the French, and the following summary of the actual achievements of the Bristol near Paris during the past week or two once more confirms this view. The tests have shown that whether from the constructional or aerodynamical point of view this machine is unsurpassed by anything of its type. Piloted by Mr. Sydney Sippe, the machine, a standard biplane with 80-h.p. Le Rhone engine, has put up records which have not been surpassed by any machine in France or elsewhere, whether biplane or monoplane, when the tests have been made with the same horse-power and loads.

The following are the figures of the official tests:—

Climbing: 3,280 feet (1,000 metres) with useful load, 385 lbs., in 5 mins. 10 secs.; 3,280 feet with useful load, 605 lbs., 6 mins. 30 secs.; 3,280 feet with useful load, 715 lbs., in 7 mins. 35 secs.

Speed: Fast, 74½ miles per hour; slow, 35 miles per hour.

All these tests were made under severe weather conditions and the strictest official observation, and it is a matter for congratulation to British construction generally that it performed so satisfactorily and in such an emphatic manner.

In addition it is generally admitted that Bristol workmanship is looked upon everywhere as the high-water mark of quality in aeroplane construction, and one hopes that after these demonstrations of their aerodynamical qualities Bristol machines will come into more general use in our own Services.

The First Show Seaplane Flies.

The "Wight" seaplane, with 200-h.p. Salmson engine, was out for its first test on Tuesday of last week, the 7th inst., in very nasty weather, with a wind of about 20 to 25 miles per hour and a very rough sea. She left the water very easily at 35 miles per hour, but after flying for a short time the motor stopped and the machine had to come down into very rough water, the waves being fully four feet high.

Owing to the state of the tide, it was some ten hours before she could be taken back to the shed. She stood the buffeting of the sea without any mechanical breakdown at all. The flight was considered very satisfactory, and she showed herself a better machine from every point of view than the 160-h.p. which preceded her. Mr. Gordon England is highly pleased with her, and says that she handles excellently. Incidentally, this is the highest powered British seaplane which has yet flown.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS
for the building of

HENRY & MAURICE FARMAN

Aeroplanes AND Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.

BRITISH BUILT

CAUDRON

AEROPLANES

MONOPLANES

BIPLANES

HYDRO - AEROPLANES

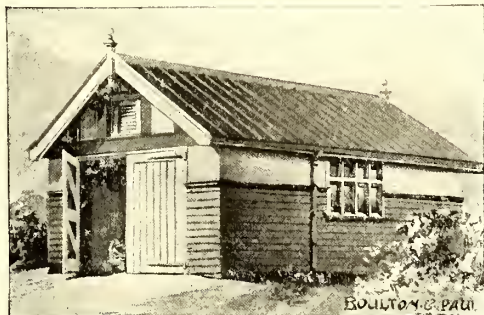
Learn to Fly the Caudron

The W. H. Ewen School
is thoroughly equipped and
Up-to-date.

THE
W. H. EWEN AVIATION CO., LTD.
LONDON AERODROME, HENDON.

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manu-
facture of Portable Wood and Iron Buildings for
all purposes. Always made from best materials,
and constructed in perfect fitting sections for
easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR
HOUSES, CYCLE HOUSES.

GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

"PERRY-BEADLE"

BRITISH BUILT

FLYING BOATS

AND

AEROPLANES.

~~~~~  
Every class of Aeronautical  
constructional work carried out.  
Send us your enquiries for work  
to be executed to your own  
ideas. Our staff of highly  
trained and technical designers  
:: :: is at your disposal :: ::  
~~~~~

Offices and Works :
GOULD ROAD, TWICKENHAM.
Telephone—RICHMOND 1109.

The Provision of Landing Grounds.

BY W. E. de B. WHITTAKER.

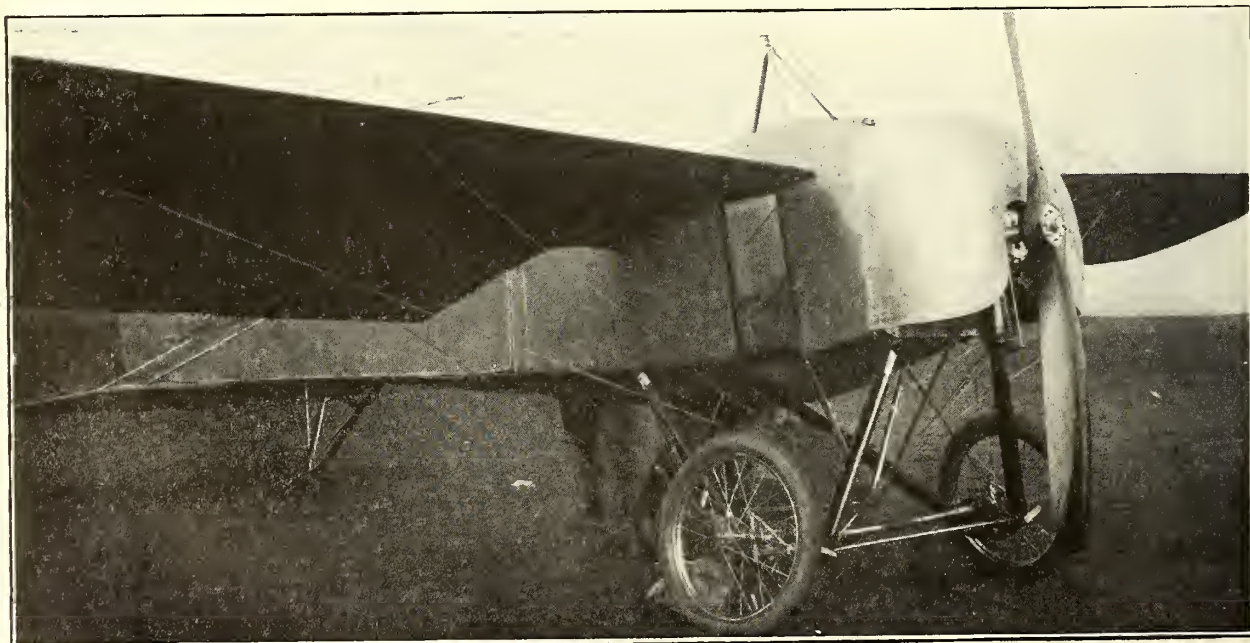
The introduction of heavier-than-air flying machines brought with it many problems affecting other things than mere flying. People who had watched the skilful sparrow fly with no apparent difficulty, and carry out with superb mastery feats which, even half as well done, would earn for a modern aviator an income beyond the dreams of aviation avarice, thought, if they thought at all, that as that sparrow rose from the twig of a tree or from an inch or two of ground so would the human aviator start and land from equally confined spaces. The balloon, the delight of the bucolic at countless flower shows in the wilds of the country, rose nimbly from a patch of earth no bigger than its own car. Hence why should the aeroplane, fleet and efficient, require more ground before it took to the air? The first aeroplanes came into being, and the first flights were made, and with experience came knowledge. Aviators were trained, but aviation remained as it began, a dangerous game, and flying was confined to certain grounds set aside for that purpose. Cross-country journeys were comparatively rare, and, in comparison with the amount of aerodrome flying carried out, are still so. Such were deemed to be the risks that save over the plains of France few people left an aerodrome without some definite objective with a suitable landing ground.

The Royal Flying Corps came into being amid a flourish of trumpets and an infinity of talk, mostly valueless. Its inventors, secure in the belief that flying would not progress more rapidly than did their brains, made no provision for the laying-out of a chain of landing-grounds throughout the country. Military pilots would learn their work at proper aerodromes, and would practice over such places as Laffan's Plain and Salisbury Plain, occasionally making a flight from one aerodrome to another. Should they desire to make a flight to Chester or York, then they would have to take the risk of an enforced landing at any intermediate point on unknown ground, of possibly very delusive appearance. In the end a landing would of necessity be made on a ground probably open to the public, and in any case totally unprovided with shed accommodation for the machine. Thus it has happened that such cross-country flying as has been made over long stretches as from Garncborough to Montrose, has often been attempted in a continuous flight. Intermediate landings have cost the country much money.

Under ideal conditions the various squadrons of the Royal Flying Corps should do at frequent intervals what may be called long "route flights" all over the country. Thus, a two-fold purpose would be served. The transport service of the R.F.C. would be thoroughly tested, and last, but not least, the corps would be advertised, and the people would see those things which are carried out with their money. The soldier, no less than the actress or the aviator, is the servant of the public, and it is well that he should give his employers, incompetent and unpleasant though they may be, some insight into the work he does, and some proof of the efficiency he has attained. Not only would these purposes be served, but the pilots themselves would acquire such experience as would double their resourcefulness and knowledge. The weaker and more futile pilots would be revealed, and the Corps' efficiency would gain thereby.

As is the manner in Government Departments the simple matter which has been common knowledge in the outer world for some considerable time has at last become known to those in the War Office, and the late Secretary of State for War made a feeble reference to it in his speech on the introduction of the Army Estimates. He said: "I would make a public appeal not only to owners of land, but to farmers who may have suitable flat fields of permanent pasture, where the telegraph wires are not too near, and the trees around are not too big—fields capable of taking one of our big aeroplanes—to communicate with the War Office, or with General Henderson, with a view to making a number of landing places all over England, Scotland, Wales, and Ireland in order to increase the safety of cross-country flying. It may be that when flying at a great height an aviator selects what looks like a suitable field for landing, and he finds that there is a barbed-wire fence running across the middle of the field, which he was not able to distinguish, and in that way an accident may be caused to the airman. If we could obtain such information as I have specified, we should be able to send down expert officers to choose proper places for landing, and to show the best methods of indicating that they are landing places." In reply to a question, he said that aviators would take the risk of running into cattle.

There are, as it happens, in this country a series of natural aerodromes very suitable for the purpose required. These are the racecourses to be found in all parts. In France and



The latest Caproni monoplane, a type which is now being built in large numbers for the Italian Army.

JUST PUBLISHED.

With 72 Illustrations, 8vo.

Price 12s. 6d. net.

FLYING

SOME PRACTICAL EXPERIENCES

By **GUSTAV HAMEL** and **CHARLES C. TURNER**

This work deals mainly with the practical side of Aviation, and contains records of numerous personal adventures. Mr. J. Elrick Adler contributes a chapter on the Physiological and Medical Aspects of Aviation, and the Hon. Guglielmo Marconi one on Wireless Telegraphy, and there are also other special contributions.



Photo: Birkett.
GUSTAV HAMEL

"Here is a book which not only every airman and everyone interested in aviation, but all thinking Englishmen should read."—*Daily Graphic*.

"A book which should do much to alter radically the public attitude of apathy towards flying. . . . This fascinating book."—*Daily Mail*.

"Anything that Mr. Gustav Hamel cares to write about the present and future of flying is bound to be of interest. . . . This useful and enjoyable book."—*Daily News*.

"The book will attract all intelligent minds in which the art of aviation creates any stimulating interest. . . . It is altogether a most engrossing book."—*Pall Mall Gazette*.

LONGMANS, GREEN & CO.,
39, PATERNOSTER ROW, LONDON.

"Beautifully smooth running, thereby adding to general comfort, in addition to saving engine power."—**AEROPLANE.**

PALMER CORD TYRES

fitted to your car will give you greater speed, greater comfort and greater safety, with reduced petrol consumption.

In the Palmer Cord Tyre Book you will find proof of the above. May we send you a copy?

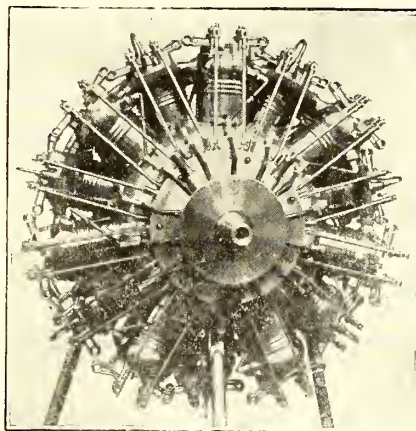
Will you write for it to-day?

THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).

SALMSON AERO-ENGINES SYSTEM CANTON - UNNE.



Phone No.:
7 Stroud.

Tele. Address:
Humpidge,
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

London Office:—**87, Victoria Street, S.W.**
'Phone No.: 7026 Victoria. Tele. Address: 7026 Victoria, London.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

in Germany pilots find but little difficulty in making long cross-country flights owing to the open nature of the land. Hedges and ditches of the type common in Great Britain are infrequent on the Continent, and in any case the average enclosure is far larger in size than is usual over here. The people express a deep interest in flying and show an intelligent sympathy which is almost entirely absent amongst our own fellow countrymen. To land on the confines of a French village is to find courteous treatment of a high order. Curiosity is repressed until aid is given, and obstruction is rare. In Great Britain the aid of the police has to be obtained before anything else can be done. It is therefore necessary that such grounds as are used by military aviators shall not be open normally to the use of the public. In these matters it is the racecourse which is so useful. In most places the ground is roughly oval in form with a large open space of grassland in the centre encircled by the track. The whole course is then protected from the public road by rails or a wall of sufficient height to keep out the most pertinacious of humans.

For those periods of the year in which there is no racing, these courses are usually let to local farmers for grazing purposes. Most of the companies or committees having charge of these places would willingly give leave to the War Office to make use of the ground if that Department would make a reasonable annual allowance.

The Army and horse-racing have always been closely connected. It is a little-known fact that on the majority of English courses soldiers and sailors in the King's services are admitted free if they are in uniform to any race meeting that may be in progress. Many officers ride in races open to them, and studious and serious though the officer of the present may

be in theory, he is not entirely unacquainted with horse-racing in all its forms. One can therefore be sure that with this good feeling on which to base proceedings, most racing companies would be only too willing to come to terms.

Colonel Seely, later in the same speech quoted above, said that "An eighty-acre field would be an admirable landing ground. A fifty-acre field has been suggested. . . . A thirty-acre field is quite good enough for ordinary purposes, provided you have not telegraph poles on one side and high trees on one or more sides." Most racecourses afford much more room than this, and without any obstruction.

At Wolverhampton there is an excellent racecourse admirably suited for the work of a military aerodrome. There are several sheds, erected at the time of the Wolverhampton meeting of 1910, and capable of being put into thorough repair at moderate expense. The ground itself is of very large size, and is well protected from the road. One does not doubt that if the Dunstall Park Race Course Company were properly approached they would let the flying rights of the ground at a very reasonable rate.

Other racecourses of which I have personal knowledge, and consider to be suitable as aerodromes or landing grounds, are those at Aintree (Liverpool), Chester, Hereford, Ely (Cardiff), Doncaster, Newbury, Epsom, Newcastle, and in many other places.

As the flying officers say that they do not mind cows, there is no real reason why the grazing rights should be gravely interfered with.

At many places in the country there are show grounds of large size very suitable for the purposes referred to above, but of these places I know but little.

The Sopwith Schneider Cup Machine.

On Tuesday of last week at about 5 a.m. the Sopwith water-plane built for the Schneider Cup race was taken down to the Thames just below Kingston Bridge for test with the new twin floats, the intention being to fly her along the stretch above Teddington Lock. Unfortunately certain Thames Conservancy officials objected, so that only floating tests were made.

Next morning at an equally early hour she was carted to Richmond, where the Port of London Authority rules, and put onto the water at Glover's Island. After a little taxiing, and proving that she floated and handled as she should on the water, Mr. Pixton took her off and flew towards Eel Pie Island. The engine, a 100 h.p. Monosoupape Gnome, was misfiring, and the reach was too short to allow her to get going properly, but she gets onto the top of the water in about her own length when the engine is opened out, and her flying speed

is estimated by good judges to be in the region of 85 miles an hour, so that she should, with any luck in the weather, make a good show at Monaco, judging on present form. Mr. Sopwith does not expect to win, he merely hopes that his machine will put up a respectable performance. Nevertheless, all in this country will wish him and Mr. Pixton every success in their plucky effort to uphold the honour of British sport.

Prohibited Areas.

It may not be generally known by pilots who are contemplating cross-Channel trips that British pilots can obtain permission from the Home Office to make non-stop flights to their destinations, thus avoiding the extra trouble and risk of landing in the prescribed area on the coast. Foreign pilots are, however, required to stop and report themselves. Further, the prohibited areas round Barking have now been altered, so that there is a clear passage across the Thames at that point.



The Sopwith challenger for the Schneider Cup, stripped for transport after her floating test on the Thames.

ACCLES & POLLOCK, LIMITED

OLD BURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST.

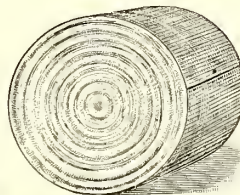
ALL SIZES, SECTIONS & GAUGES
 OF **STEEL TUBE**
 FOR **AEROPLANES.**

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE



TRADE MARK **'TABLOID' BANDAGES**
 (Pleated Compressed)

Ordinary roller and 'Tabloid' Bandage same length and width—note relative sizes

Ideal for Aviators

Sold by all Chemists

Burroughs Wellcome & Co, London



BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works : **BROOKLANDS AERODROME, WEYBRIDGE, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone : Byfleet 190.

TEL

The Best Revolution Speed Indicator

Being mechanically operated possesses the following advantages—

Over 2000 TEL instruments supplied for use by the French, Russian, Italian and Spanish Naval and Military Depts. and the British Admiralty.

THE HASLER CO., 26 Victoria St. Westminster, London, S.W.

Phone Vict. 431

Uniform Dial Graduation
 Not affected by changes in temperature or vibration.
 Indicates with same accuracy high and low speeds.



CELLON

LTD.

As NOW being used by the
**Admiralty, War Office and
 leading Constructors.**

CONTRACTORS TO H.M. GOVERNMENT.

17, OLD BROAD STREET, LONDON, E.C.

Telegrams : "AJAWB LONDON."

Telephone : 5359 London Wall

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

For Great Britain and the Oversea Dominions :

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

NAVAL.

At Eastchurch on Monday Lieut. Davies, R.N., was out for a short flight on a Short (50 Gnome), and on Tuesday the same machine was out. On Wednesday, Sopwiths (80 Gnomses) Nos. 27 and 33, Bristol tractor (80 Gnome), two Shorts (50 and 80 Gnomses), and a Caudron were flying. On Thursday, Short No. 2 (50 Gnome) was in use for instructional purposes. There was no flying on Friday, and on Saturday Sopwiths Nos. 27, 33, and 104 (80 Gnomses), a Caudron (50 Gnome), and a Short (50 Gnome) were in use.

Practically nothing has been done during the past week at Leven. The staff has been reduced to six, and seaplanes have had a rest. The remainder of the staff, however, are only gone to Dundee for a short spell, and are expected back shortly. The reason why is as yet unknown, to our correspondent, at any rate. Short No. 42 was out on Thursday night, and was piloted by Major Gordon, R.M.L.I., with a Marine as passenger. He circled Largo Bay, and went inland for a bit.

The hangars and machines are still here, and are to remain for three weeks yet, but only Short 42 will be flown. The wireless installation has been dismantled.

In the course of a discussion on various types of aeroplanes the other day a naval officer made a point which will doubtless be of interest to pilots of Mark B.E.2 biplanes. It may not be generally known outside the Services that the warp-wires, which are also the rear spar load wires, of the B.E.s have, as the result of certain unpleasant experiences, to be changed for new ones after 6 hours' flying. The naval man remarked, "If those wires have a factor of safety of 6 to 1 when they are new, apparently after five hours' flying they have a factor of 1 to 1, which must be very comforting for the pilots." Of course, it is not actually as bad as all that, but if there should be some undiscoverable defect inside one of those cables they must be fairly near the edge of safety at the end of four or five hours, seeing that they are working wires and are not carrying a simple straight load as in a box-girder machine.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending April 4th, 1914:—

No. 2 Squadron (Montrose).—The mileage of this squadron during the week amounted to 1,756 miles. The technical training of recruits recently posted was continued.

No. 3 Squadron (Netheravon).—The officer and N.C.O. pilots of this squadron were flying daily. Experiments in photography and rangefinding were carried out.

No. 4 Squadron (Netheravon).—1,791 miles in all were flown by the pilots of this squadron in reconnaissance flights across country. Practice in landing in restricted areas was carried out.

No. 5 Squadron (Farnborough).—The officer and N.C.O. pilots covered 1,115 miles in all during the week, chiefly on cross-country reconnaissance flights.

No. 6 Squadron (Farnborough).—The pilots of this squadron were flying daily over the country round Aldershot. The mileage totalled 1,436 miles. The N.C.O. pilots were given instruction in map-reading from the air.

Flying Depot (Farnborough).—Besides experimental flying, much work was done in connection with repairs on aircraft and M.T., and with technical training of recruits.

General.—The B.E. 2 type machines of the Military Wing were stopped flying on March 23rd, pending the result of an inquiry into certain points of their construction, which was held on the 25th. As a result of the conference, at which the Director-General of Military Aeronautics, the Commandant, Central Flying School, and the Officer Commanding, Royal Flying Corps (Military Wing), and all Squadron Commanders were present, the B.E. 2's were taken back into use the following day.

The War Office, April 7th, 1914.

Lieut.-Col. E. M. Maitland, whose promotion was notified last week, has been appointed second in command, under Com-

mander Masterman, R.N., of the Airship Section of the Naval Service, the latter title replacing "Royal Flying Corps (Naval Wing)" for the first time in a Gazette on the occasion of this promotion. Colonel Maitland was one of the first Army officers to take a practical part in flying. Prior to doing so he had done a large amount of ballooning and had made quite a name for himself owing to his faculty for landing in extraordinary places, these including the Thames and the roof of a house. At the first Doncaster Meeting in 1909 he was in charge of Mr. Moreing's Voisin biplane, but neither he nor anyone else ever succeeded in persuading it off the ground. In 1910 he bought a Howard Wright biplane, and, in a sporting effort to fly it before he had learned to roll, he smashed it up, the lower plane trapping his ankles, breaking one and dislocating the other. A long illness, borne with the greatest pluck and cheerfulness, followed, and two of his toes had to be amputated. As soon as he could walk, and long before he could run, he was again in the air in balloons, and as passenger on aeroplanes, having another smash at Brooklands, on the evening of the start of the "Circuit of Britain," in 1911, when a passenger with Lieut. Barrington-Kennett. Thereafter, he took to airship work, and soon became one of the best pilots of the little military dirigibles. Early in 1913 he took his aviator's certificate on a Henri Farman biplane in France. In 1912 he was appointed to command No. 1 Squadron (Airships and Kites) of the R.F.C. (Military Wing). While in command he dropped in a parachute from an airship piloted by Capt. Waterlow, R.E., the only time such a feat has been performed. Colonel Maitland is one of the few men who hold the pilot's certificate for aeroplanes, ordinary spherical balloons and airships.

The March gales still rage in the North, and so fiercely as to keep the aviators at Montrose on terra firma. As the wind dropped on Tuesday evening, Lieut. Rodwell arrived from St. Andrews on B.E.229, which had alighted there on the previous Saturday with a faulty engine. On Wednesday morning the various officers went on extended reconnaissance flights, in which Capt. Waldron, B.E.272; Capt. Todd, B.E.233; Lieut. Davies, B.E.225; Lieut. Corballis, B.E.232; Lieut. Harvey, Maurice Farman 214; Lieut. Empson, B.E.229, all took part. Lieut. Rodwell started off on B.E.327, but was just rising over the end of the sheds when his engine failed, and he dropped into an adjoining field. The next day saw the commencement of Easter leave, so that flying was stopped, and will be resumed to-day (Thursday, 16th).

The accident to Lieut. Rodwell on B.E.327 was caused by a choked petrol pipe. The same thing happened to Capt. Waldron on that identical machine four days previously. It is extremely lucky that both pilots had fair ground to land on. Lieut. Rodwell landed in a newly ploughed field, and the same afternoon Major Burke took out the squadron to the field and marched them up and down on a long strip until a fairly hard track was made of some length. Capt. Waldron then took charge of the machine, and the mechanics held on while the engine gained its full power; at a signal they released it, and it made a splendid ascent in a very short distance, only about a third of the space prepared. Again one wonders why slipping tackle and pegs are not used, instead of men having to hang on to tails, at the risk of bending frames and levers.

A rather interesting fact has come to light with regard to Major Burke's flight on B.E.272 from Kilmarnock to Montrose. After he had circled Mr. Asquith's residence, he was forced to alight, on account of a leak in the gravity petrol tank. This did not bother him much, for he filled it up from the main tank and re-ascended. He stopped and repeated this operation eight times before he got back to Montrose.

FRANCE.

Lieut. de Villepin, Sergeant Pequet, and Corporals Brullard and Chapier of the Reims escadrille took delivery of four Nieuport monoplanes (100-h.p. motors) at Villacoublay on April 8th. All four flew back to Reims on their new mounts without incident.

Capt. Voisin, Sapper Bloch, Sergeant Pelletier and Quartermaster Clément, flew from Mailly to the new military aero-

drome at Ouges-les-Dijon, where they will be stationed. Their machines are all Henri Farmans.

Dispatches from Tangiers state that the bodies of Capt. Alfred Gaston Hervé and of Corporal Roland were found by the inhabitants of the valley of Bon-Reqreb in Western Morocco. They had evidently been forced to land and were captured and assassinated by bandits. Their machine has not been found.

The parts of the new French Astra-Torres airship of 23,000 metres cubic capacity arrived at Epinal on Thursday, April 9th, and the work of erection was immediately commenced.

Tests of a new single-seater scout of the Morane-Saulnier Parasol type, fitted with a 60-h.p. Gnome motor, were carried out before a military commission at Villacoublay on April 9th. This machine can be packed for transport or assembled in three minutes. With full load 1,000 metres (3,280 feet) were climbed in 6 mins. 40 secs. The machine left the ground in 35 metres (115 feet) and pulled up in the same distance, and the speed obtained was $72\frac{1}{2}$ m.p.h.

Trials of Morane-Saulnier "parasols" were also witnessed by a Turkish military commission and by the military attaché of the Argentine Legation.

On April 7th, Ensign Janvier, of the French navy, made a night-flight on his Voisin seaplane at Saint-Raphael. Starting at 7 p.m., he flew all round the neighbourhood, making a perfect start and finish. This is claimed to be the first occasion on which a naval officer has flown a seaplane after dark. One is, however, under the impression that it has already been done at Culshot.

GERMANY.

The new wireless station at Friedrichshafen, erected for the aid of Zeppelin airships, commenced operations on April 1, entering into communication with the other German wireless stations and the Eiffel Tower.

An interesting event uniting motor-cars, balloons and aeroplanes took place at Frankfurt under military conditions. Frankfurt was assumed to be besieged, and communication with the outer world to be possible by balloons. The motors and aeroplanes were to prevent this if possible, the motors to capture the balloonists on landing, the aeroplanes to cross them in air, so proving themselves capable of destroying them in times of war. Eight balloons were started off first, and on their reaching 800 metres, a like number of Euler biplanes, of the Darmstadt military aviation station, each with a pilot and an observer, ascended. Lieut. von Osterroth crossed four balloons in 1 hour and 16 minutes, Capt. Hurser 7 in 1 hour 45 minutes, and Lieut. Zahn 7 balloons in 2 hours 59 minutes. Four balloons were captured by motor-cars, the others landing in safety.

Z5, stationed at Johannisthal, carried out its hundredth ascent on April 4, being gaily decorated with bunting and garlands in honour of the event.

It is alleged that 300 kms. in an hour, before a tearing gale, was accomplished on April 6th by Lieut. Hesse, with Capt. Feigl as passenger, on a 100-h.p. Jeannin Steel-Dove. They flew from Hanover to Berlin in 60 mins., landing at Johannisthal in very stormy weather. 300 kms. is 180 miles.

The German Minister of War has just issued a statement of the qualities which machines designed for sale to the army must possess. The machines must be of German manufacture in all their details. The field of view for the pilot, as well as the passenger, is to be greatly extended. The passenger and pilot are to be in ready communication. Special provision is to be made for a proper photographic outfit. The vertical rate of ascension must exceed 2,500 ft. in 15 mins. The machines must get off in not more than 100 metres (328 ft.) and must not roll more than 70 metres (216 ft.) after alighting. The normal speed is not to be less than 90 kilometres ($55\frac{1}{2}$ miles) per hour. The machines must pack easily onto a railway truck or a military wagon. The noise of the motor must be silenced much more effectually than at present.

RUSSIA.

A new type Henri Farman biplane, fitted with a 100-h.p. Gnome has just been tested before a Russian military commission at Petersburg. Carrying a load of 320 kilos (700 lbs.) 500 metres (1,640 feet) were reached in 3 minutes and 1,000 metres (3,280 feet) in 7 mins., 2,000 metres (6,560 feet) in 18 minutes, and 2,800 metres (9,184 feet) in 25 minutes.

According to the French Press these results surpass anything yet done by any other make of biplane.

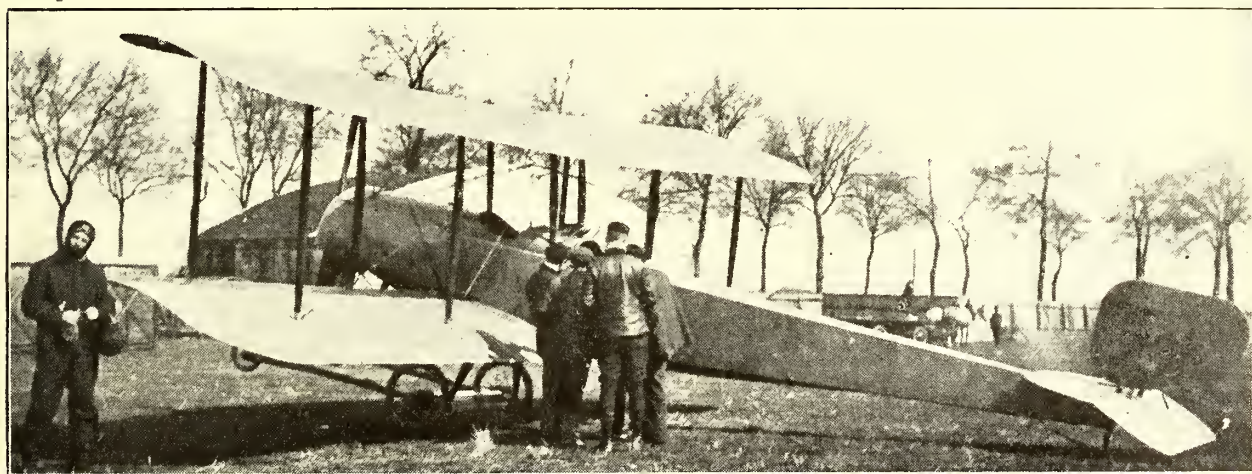
The German military pilot, Mischewsky, who lost his way and descended inside the Russian frontier some months ago, has been acquitted of espionage, but has been sentenced to three months' detention in a fortress for having flown over prohibited areas. The balloonists have been released.

ITALY.

The end of the "City of Milan" was in this wise, and is due to downright hard luck. The only lesson to be learnt from the disaster refers to the educational system of this country! Briefly, what occurred was as follows:—

First stage. Rapid deformation of the envelope when in the air, the nose became very flabby and the vessel refused to answer to the elevator. A quick descent was made safely into a field surrounded by farm buildings, and the ship was moored out as well as possible by the help of the farm hands. Assistance of a more skilled kind was sent for, and waited for. Wretched communications and notoriously under-policed conditions of the district generally admitted.

Second stage. Sudden gust of wind shifted dirigible, trees, farm hands, and others some 100 yards, with damage all round. It was decided to deflate, and orders to put out pipes, cigars, and other domestic heating arrangements were given, but not altogether obeyed. The outer envelope was removed in safety, and the public was adjured to give up smoking while deflation of the gas bags proceeded.



The Bristol, with 80-h.p. Le Rhône motor, which did so well at Villacoublay piloted by Mr. S. V. Sippe, under official observation by the French Army.

Third stage. In spite of all care, the gas ignited, a violent explosion occurred and ignited everything except the petrol tanks, only one of which caught fire. Some forty people were injured in the explosion, and in attempts to put out the fire following it. The explosion seems to have been almost so instantaneous as to have done little harm. The petrol oil and water tanks, and even the instruments which were, as were several helpers, in the thick of it, appear to be little the worse. Some say that the deformation of the envelope was due to the air-pump not working efficiently. Others that an electric wire cut it!! (?)

I see by photos that the envelope was absolutely flabby when the dirigible first touched ground, so that either the air or one or more compartments containing gas must have leaked lustily. The vessel was manned and commanded by an expert crew, Major Dal Fabbro himself being on board.—T. S. HARVEY.

SPAIN.

During the review held in honour of Prince and Princess Henry of Prussia at Santiago, five military aeroplanes cruised over the ground, after having met the royal train en route and accompanying it to its destination.—B.

On April 7th, Lieut. Monasterio landed heavily at Cuatrecientos, seriously injuring himself and smashing his monoplane.

SWEDEN.

As already reported, Capt. Sundstedt intended to fly from Paris to London and back on his Henri Farman waterplane, and on the 7th he started in bad weather with Mr. Conradi from the Swedish Legation at Paris as a passenger. A stop was made at Calais, and afterwards he returned to Paris without having crossed the Channel.—H.

NORWAY.

A few days ago Capt. Thanlow of the Norwegian Army Flying Corps took delivery of a Maurice Farman biplane at Trondhjem.—H.

DENMARK.

The two flying officers, Lieuts. Grut and Hammelev, have got their superior military brevets. Each of them used a Maurice Farman biplane and flew over the course, Copenhagen-Helsingør (Hamlet's Tomb)-Vordingborg-Slagelse-Copenhagen, the former finishing by night, part of the flight taking place by moonlight, the latter flying in so strong a wind that it took him 2½ hours to get from Helsingør to Vordingborg (81 miles).

The first flying manoeuvres in open land took place on Friday, April 3rd, the King of Denmark being present. Lieut. Ussing flew a Henri Farman (80 Gnome) and Lieut. Grut was on a Maurice Farman (70 Renault), both with observers.

Three more officers have joined the Army flying school.

GREECE.

The Greek Government has recently issued certain regulations concerning its Naval Air Service. The new corps will be formed of officers and petty officers of under thirty years of age. The commanding officer for the time being will be a member of the British Naval "mission" (at present, Lieut. Pizey, R.N.R.), who later will be replaced by a Greek officer-aviator.

The pay of the Greek Naval Air Service is fixed as follows:—Squadron Commanders (Divisions of Avions) 1,000 frs. (£40) per month. Flight Commanders (Escadrilles) 750 frs. (£30) per month. Officer-aviators 600 frs. (£24) per month. Observers and wireless operators 500 frs. (£20). Sous-officers from £5 to £13 per month, and mechanics who pilot aeroplanes £20.

A special wireless service operating from the coast defence air stations and warships will keep in constant touch with a central station at Athens.

Foreign Notes.

France.

His many friends in England will be pleased to hear that M. Grandsigogne, one of the first pilots of a Caudron, who will be remembered as flying very well on Bristol machines some years ago, is now making a satisfactory recovery from his

recent accident at Issy les Moulineaux. He was flying a Clément-Bayard monoplane in a very strong wind, and made a rough landing owing to the machine being almost turned over by a squall. Very little damage was done to the machine, but the wooden supports of the petrol-tank gave way and let the heavy tank down onto his leg, causing compound fractures in two places. The injury has given considerable trouble to the surgeons in charge of the case, and the patient has undergone two serious operations. However, he has kept up his spirits in his usual plucky fashion, and now writes that he is well on the road to recovery. One hopes to hear soon of his again being fit to continue his work with the Clément firm.

M. Poulet in the course of training for an attempt on the duration records, made on Thursday, April 9th, a flight of twelve hours' non-stop in a very bad wind. His machine was a Caudron biplane with a 60-h.p. Le Rhône motor.

The system of aerial signs painted on the tops of gasholders and similar suitable erections—initiated by the Ligue Nationale Aérienne—consisting of numbers indicating the latitude and longitude of the position—is proceeding apace. At the moment there are thirty-eight such signs in existence, but it is expected that there will be over 150 such signs erected within the next few months.

On April 7th the French President and Mme. Poincaré travelled to Eze-les-Pins, escorted from Villefranche by M. Macon on a seaplane. At the moment when Mme. Poincaré alighted from the train he threw her a bouquet of flowers, which fell a short distance from her feet.

M. René Caudron, with a passenger, made a night-flight over Port Mahon and the surrounding district on April 1st. Landing was successfully accomplished by the aid of an electric light carried on the machine.

M. Garaix continues to re-make passenger height records for the German pilots to attack, his latest being 1,580 metres (5,180 ft.) with eight passengers on the Schmitt biplane. M. Garaix now holds the height records for 3, 4, 5, 7 and 8 passengers.

On April 1st, while M. Pierre Testulat was testing a military machine, he collided with a pylon. The machine was badly damaged, the escaping petrol caught fire, and the pilot and his passenger were burned to death before help arrived.

Germany.

Pégoud reappeared at Berlin-Johannisthal on March 28th in rainy, gusty weather, when he looped with passengers. There were comparatively few spectators owing to the weather, and not a single officer. As a reason for this, it was rumoured that officers, N.C.O.'s and men had received orders to stay away from the grounds so long as Pégoud was performing. This report was strengthened by the fact that the aviator-officers remained in their hangars, not issuing from their retirement until after the demonstrations.

There is decided jubilation in Germany at the news that 30 D.F.W. machines have been ordered for England, 12 by the Navy. All of them will be fitted with 100-h.p. Mercedes motors. The German invasion is strengthened by the presence of Thelen, with his 100-h.p. Albatros (Mercedes motor) biplane. Thelen is one of the oldest and most experienced of German aviators, his brevet bearing the number nine.

[It will be well to remember that these orders are conditional on various points, such as increased speed and climbing power, and that the machines have to be built in England.—Ed.]

At last a German has succeeded in looping. On April 3rd Herr Gustave Tweek, a youth of 21 years, looped the loop on a Gracie monoplane at Bork, near Berlin, fitted with a Gracie two-stroke motor of 70 h.p., and an extra chassis on top.

During March flying took place at Johannisthal on 27 days. One hundred and thirty-five different aviators flew during this time, performing in all 4,473 flights, Herr Witieng alone making 329.

On April 10th, Herr Reichelt was flying with a lady passenger at Kaditz, near Dresden, when, owing to the breaking of a wing, the machine crashed to the ground. The passenger was immediately killed, and the pilot died shortly afterwards from his injuries.

Austria.

Sufficient national entries have been received for the Austrian Schicht prize, so an international competition is unnecessary. The majority of the entrants are unknown abroad. Stiploschek and Reiterer, who will both pilot Motor-Luftfahrzeug-Gesellschaft machines, are the best known.—B.

Italy.

On March 30th great junketings and much feasting and talking enlivened the ancient aerodrome of Cameri. It was the occasion of the formal reopening of the place by Signor Gabardini's enterprise as his works and flying school. Signorina Ferrarie, Cevasco, and others flew merrily, and visitors from every firm and every walk in life connected with modern locomotion were there. May the aerodrome never be less populated! One has such pleasant memories of its past that one cannot help wishing it an even happier future.

No news reaches me as to the Rallye so far, nor can I hear anything more of Widmer, who is again trying to accomplish the Trieste-Rome trip, and has had to come down owing to the petrol-tank stopper having disappeared, or something annoying of that sort, at Ravenna.—T. S. HARVEY.

Scandinavia.

Concerning the "Northern Sea Flights" not much rests now to be told. Sweden has at last determined to take part in the race, Gotheborg being the Swedish city to be passed. The weight of the passenger has been reduced to 65 kilos (150 lbs.). The office of the Danish Aeronautical Society will be the central office of the flight. The presidents of the Scandinavian aero clubs are vice-presidents of the flying committee. Its first president will be Baron von der Goltz, who heads the German Aircraft Confederation (Deutscher Luftschiffer Verband).

The well-known Swedish aviator, Dr. Thulin, made a very fine flight the other Sunday from Landskrona to Ystad in two hours, in spite of a very strong rainstorm (25 metres per second), and afterwards he made some fine exhibition flights for the wondering inhabitants.

Australia.

"Capt. Penfold" writes that on February 28th Mr. Hawker gave a flying exhibition at Victoria Park, Sydney, before a huge crowd, which showed great enthusiasm, and was particularly thrilled by his spirals and his turf-cutting performances. Mr. Hawker left Sydney during the following week for Melbourne, and he is reported to intend to leave for England at an early date.

Mr. Hawker's recent accident was comparatively slight. It appears that he had taken up a somewhat weighty lady passenger, and in landing had to come in low down over some trees. He dived over the trees and flattened out suddenly, with the result that he and his passenger were too much for the seat-bearers, which broke and sat them flat on the fuselage floor, which so upset the controls that the machine landed awkwardly, breaking the propeller and chassis.

Egypt.

A correspondent in Egypt writes that Olivier is improving in his flying considerably. On one occasion he flew from Cairo to Luxor with a German Princess, and he seems to be making money. One would imagine that this was necessary, for it is said that his smash at Abassieh cost his backer, M. Rodin, some 6,000 francs.

The same correspondent writes that Mr. Oswald Watt has been flying his Blériot at Heliopolis, and has had a good time; but he complains that landing is abominable, as one is always dodging big stones and washouts, like miniature editions of the Pyramids and the Nile mouths, and it is like having to alight on a chess-board.

Mr. Oswald Watt, who has been flying a Blériot (60-h.p. Gnome) at Cairo, is leaving Egypt for London very shortly.

M. Marc Pourpe's recent trip from Cairo to Khartoum, a distance of 1,375.5 miles, was covered in a net flying time of 16 hrs. 18 mins.—an average speed of 83 m.p.h. The flight back took 24 hrs. net, equal to 56 m.p.h. The southward journey was carried out between January 4th and January 12th, and the return journey commenced on January 19th and was finished on February 3rd. The apparent slow speed on the return journey seems to be due to various divagations from the

direct route to view places of interest. After arrival at Cairo M. Pourpe flew from Heliopolis to Suez, and thence via the Suez Canal to Port Said, in all a further 168 miles. A total mileage of 2,883 miles within six weeks. Quite an enjoyable little holiday!

M. Jacques Schneider has reached Khartoum with a "Glisseur" (100-h.p. Gnome), which was illustrated in this paper some short time ago.

High-Powered Aircraft.

The orders now being placed by the Russian Government include ten Salmson-Sikorskys, five with two 200-h.p. engines and five with two 125-h.p. engines. Four other Sikorskys are to be fitted with four 110-h.p. Argus engines, but these are merely for use as school machines. It is probable that the thirteen really big Sikorskys for the Russian navy will each be fitted with four 200-h.p. Salmsons.

The French navy have ordered a Voisin which is to be fitted with a 300-h.p. horizontal Salmson, similar in its details to the engine shown at Olympia, and one of the two airships on order for the Russian Government is to be fitted with five 300-h.p. Salmsons of the same mark.

These powers make even our 200-h.p. Sopwiths and Wights look small. There are big orders awaiting the British firm which first produces a 500-h.p. engine, and, in such sizes, surely we may think of Diesel engines and get away from petrol, with its constant danger of fires.

The Schneider Cup Eliminator Trials.

The eliminator trials for the French Representatives in the Schneider Cup race were held at Monaco on Thursday, April 9th, over four laps of the course. There was some considerable wind and a choppy sea, notwithstanding which Dr. Espanet on his Nieuport completed the tests at a mean speed of 100 kilometres an hour (62 m.p.h.). No other machine completed the course, but MM. Levasseur (Nieuport) and Garros (Morane) finished two laps at about the same speed and descended. The Aero Club of France has nominated Dr. Espanet and MM. Levasseur and Garros as their representatives, with MM. Prévost (Deperdussin), Brindejone de Moulinais (Morane), and Janoir (Deperdussin) as reserves.

The Monaco Rallye.

M. Brindejone de Moulinais remained the only pilot who had reached Monaco up to Monday. Moineau on a Bréguet eventually arrived at Marseilles (on Monday the 6th) after much engine trouble, and was again let down by his motor on the sea flight, when a torpedo boat in a clumsy attempt to tow him smashed the machine.

Herr Ernst Stoeffler was detained at Mulhouse by bad weather till Thursday, the 9th, when he left for Gotha. Thence he started on Saturday and flew to Villeneuve des Avignon, within sixty miles of Marseilles, where he was brought down by trouble to his Benz engine. He left Gotha at 4.18 a.m. and reached Frankfurt at 7.8 a.m., left at 7.10 and arrived at Dijon at 12.20 p.m., and left at 1.15 p.m. His landing at Villeneuve occurred at 4.18 p.m. He hoped to leave Villeneuve on Sunday morning and to reach Monaco that day.

M. Molla and Lord Carbery left Buc on Sunday morning early, but returned. M. Verrier also started and reached Arnet, near Pezenas, where he collided with a tree, to the serious detriment of his machine.

M. Mallard, who reached Bordeaux on April 2nd, remained there till the 4th, when he left and reached Albi (Tarn). He remained there till the 7th, presumably with motor trouble, when he left and reached Marseille. He was still at Marseille on Saturday the 11th inst.

M. Garros was at Marseille on Saturday morning (11th), having flown his waterplane thence to Monaco and back. One gathers that he was flying the return route from Monaco, having flown to Marseille from Orange, where he stopped on April 2nd, but completing the course outside the time limit.

M. Brindejone de Moulinais left Monaco on Saturday morning at 11.24 a.m., but had trouble with a leaky float. He started again on Sunday (12th) on the Rome itinerary and reached Genoa in the evening. He left next morning, but was stopped at Pitigliano by motor trouble.

The Brooklands Accident.

On Wednesday of last week, April 8th, Sergeant Eric Deane, late R.E., a clerk at R.F.C. Headquarters, South Farnborough, who was learning to fly at the Bristol School at Brooklands, at his own expense while on leave, was killed through falling from a school biplane.

Sergeant Deane had passed the two "figures of eight" test for his certificate, and had gone up a third time for the gliding test, in which the candidate has to land with the engine switched off from a height of 100 metres, about 328 feet. There was a little wind at the time. Instead of going only to 400 or so Deane rose to 1,000 feet, and then started a spiral descent. He descended so steeply that in two small circuits he had come down to 400 feet, with the machine almost vertical, and apparently beyond his control. Here he either met a gust or leaned over to switch off his engine and overbalanced. In any case he pitched headlong out of the machine and was killed. The machine descended quite slowly upside down, and was smashed through dropping onto one wing-tip. Examination showed the control wires to be intact.

At the inquest the jury seemed to agree that the accident was caused by over-confidence, which is equivalent to saying it was the victim's own fault. Perhaps they were right, but every pilot who has ever played tricks on a box-kite biplane of the old type is morally entitled to a share of the responsibility. True, what is safe for one man is not safe for another, but pupils will always try to imitate the most experienced fliers, and unfortunately when a pupil does so with success he is applauded for having taken a "good ticket," instead of being condemned for recklessness. I do not know personally of any instructor who checks a pupil for doing too well.

The accident suggests that all schools, and there are many of them, which use the old-type box-kite, should seriously consider whether the time has not come, in view of the increasing difficulty of the certificate test, to use machines of another type for the final stages of tuition. Here, again, it is the instructors who are responsible, for if the instructors insist that the old-type box-kite is the best for their work, their firms naturally supply them.

For the old certificate tests, which only consisted in flying a few circuits low down, the open-fronted lifting-tail box-kite was excellent. It moves slowly in any direction, provided there is no wind, and gives the pupil time to think what he ought to do. Also the pupil can see the ground when practising landing. It is easy to repair minor breakages, and it is cheap to build. But in these days, with the increasing flying ability of instructors, improved methods of tuition, and more difficult tests, a pupil frequently reaches a stage when he acquires skill without experience. In consequence he may deceive even the most experienced instructor into thinking he can do things which are beyond his capabilities if anything unexpected occurs.

An experienced flier taking a box-kite up in any wind would wear a safety belt. All the military Farman pilots do so, as do the Grahame-White pilots at Hendon, and many others. But it would be very unwise to strap a pupil in, for many of the best pilots of to-day are alive because in their period of pupillage

they were thrown clear of their machines in a bad landing, and so escaped being crushed by the engines or tanks.

There are, however, alternatives to the old-type box-kite which involve practically no additional expense and yet would increase the safety of pupils under modern flying conditions.

Firstly, existing machines could be altered by putting the pilots and passenger farther forward and taking nearly all the weight off the tail, the machine would then be safer to handle on turns and less liable to side-slip through stalling. By fitting a low streamline body and placing the passenger and tanks low down behind the pilot head-resistance could be reduced, and this would allow for more wing-surface to replace the lift lost by reducing the lift of the tail. Also, such a body would abolish the mental discomfort of sitting on open seat-struts with a 300-feet drop below one, and would make it almost impossible to fall out unless a machine turned past the vertical, as Major Merrick's did, through his falling on the control. It should also be possible to fit a sliding bar across the front of the pilot's seat, which, though it would not prevent a pupil from being pitched clear in a smash, would pull the control back if he merely slipped forward through diving too steeply, and so would bring the nose of the machine up again.

The second alternative is to turn all school machines into tractors. They can be built as cheaply as any other type, and can be made to fly and handle as slowly, and one can take falls in them with impunity which would result in serious or fatal injury in any propeller-driven machine. There is no need to be flung clear in a minor smash, so a pupil can add still further to his safety by strapping himself in, which will generally result in his saving his legs and arms in quite a serious accident. Those who recall how Mr. N. S. Percival consistently stood on his head in his old tractor biplane at Brooklands will realise what appalling smashes a pupil in a slow tractor machine can take unhurt.

Poor young Deane is the first pupil to be killed in a box-kite smash, but many pupils have had very narrow escapes, as witness those of Captain (now Lieut.-Col.) Maitland on his old Howard Wright, his brother Mr. H. M. Maitland, Major Benwell, Lieut. (now Capt.) Longcroft, and a host of others, on box-kites of all sorts of makes. Some of them have been quite seriously injured in accidents which, judged by the speed at which they occurred, would have done no harm in a tractor machine.

One can only hope that a full consideration of these points may remove some of the conservatism of the various school instructors and induce them to realise that the type of machine which is merely the easiest on which to teach a pupil the rudiments of flying is not necessarily the best for the pupil's education or safety when once he has learned to fly alone. One knows that several of our biggest firms have tried to introduce slow-flying tractors in their schools, and the machines were condemned by the instructors, and one can only hope that the younger generation of instructors which is coming along with the growth of the various schools will have more advanced views.—C. G. G.

The Fin Effect of Propellers.

The point raised by Mr. Gordon Bell, when speaking before the Aeronautical Society, referring to the "fin" effect of propellers, is worthy of special attention by aeroplane designers. This action may very possibly account for the recent accident to the Sopwith biplane piloted by Lieut. Spenser Grey, R.N., with Eng.-Lieut. Aldwell as passenger.—Incidentally, both patients are making excellent progress. The machine in question had very little surface forward of the centre of gravity, and a fairly deep fuselage with a rudder of ample size, so fixed side area can scarcely have been the cause. On the other hand, it had a very big tractor screw, sufficient to absorb the power of a 100-h.p. engine.

It seems evident, when one comes to think about it, that when a tractor machine starts to skid to the right, on a left-hand turn, the propeller must act as a very big fin very far forward and above the centre of the engine, and, in any ordi-

nary machine, above the centre of gravity, whereas on a skid to the left, on a right hand turn, it will act as a fin forward and below. The bigger the power used, the bigger the propeller and the bigger its fin effect. If the engine is switched off most of this fin effect stops and the machine may stop spinning and become directionally stable.

In a propeller machine the whole effect is reversed and a machine which is fairly stable with the engine running may become unstable when it stops.

Some of these effects were referred to by Mr. W. H. Sayers in an early issue of the late lamented "Aero," as the result of his experiments with models. One gathers that quite lately they have been exhaustively investigated at the N.P.L., and the result will no doubt at some indefinite future date appear in a "Blue Book." One ventures to suggest that their immediate publication might save a few lives, besides, accelerating progress in aeroplane design.—C. G. G.

Wood and Steel in Aeroplane Construction.

By W. H. SAYERS.

All-steel construction for aeroplanes has been advocated often, and many writers have confidently asserted that wood as the chief structural material for aeroplanes will soon be as obsolete as it was some little time ago for motor-cars. Certain engineering journals in their editorial columns have on more than one occasion made scathing remarks as to the utter lack of engineering knowledge displayed by the designers of aeroplanes as instanced by the use of wood under stress.

Yet wood remains as the chief material employed, and seems likely to so remain, whilst the reappearance of armoured ash chassis frames in certain recent motor-buses seems to suggest that wood is not so entirely obsolete for car construction as it once seemed, so that it may be of interest to consider why this is so.

The two woods principally used in aeroplane construction are English ash and silver spruce, whose strengths and weights are—

Weight per ft. Cube.	Tensile strength per square in.	Safe working load per square in.
English ash 49 lbs.	13,000 lbs.	1,000 lbs.
Silver spruce ... 35 lbs.	9-10,000 lbs.	800 lbs.
Against this we have to put—		
Mild steel 490 lbs.	60,000 lbs.	6,000 lbs.
High tensile steel 490 lbs.	up to 200,000 lbs.	up to 20,000 lbs.

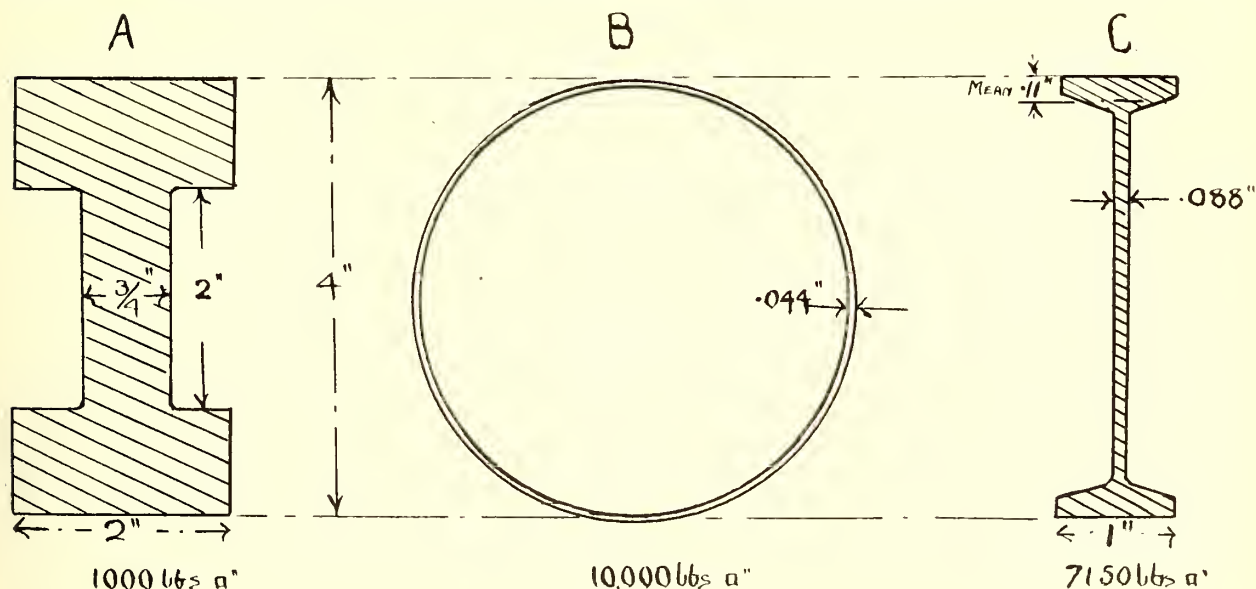
after working. Any further operations, such as bending or forging, may involve specially trained men and special plant in the user's works, and the special strength of these steels may be almost entirely destroyed by any careless mechanic with a blowlamp after the machine has left the works. Further, they suffer to an even greater extent than mild steel from the disadvantages to be discussed hereafter.

Mild steel is, however, cheap, easily worked, and can be bought over the counter in tubes of the gauges suitable for aeroplane work.

Consider the use of steel for wing spars. In this case considerations of wing-design limit the maximum depth available, so that one must compare spars of equal depths.

In the accompanying figure are shown, in about half size, three spars of equal depth (4 ins.) and equal weight per foot run (1.8 lb.). A is a channelled ash spar and is, as will be seen, a fairly solid log of wood. B is a steel tube, 4 ins. in diameter and .044 in. thick in the wall.

It will be obvious to anyone acquainted with the habits of steel tube that a spanner dropped on this spar would probably dent it seriously—and that this dent, while invisible beneath the wing covering, might practically destroy the strength of the tube by starting to buckle the surface on the top and reducing the effective depth of the girder.



These safe working loads for wood are such as are dictated by experience, and are acceptable to the British Admiralty for maximum normal stresses on wing-spars of aeroplanes. Those for steel are based on a similar factor of safety to that used in the case of the wood, and are unfair to the wood in view of the fact that the elastic limit (that is, the point at which permanent deformation of material occurs) of wood is much closer to its ultimate strength than in the case of steel.

Dividing the safe load figures by the weight per cubic foot a figure is obtained giving the relative strengths for equal weights, which are as follows:—Ash, 20.4; spruce, 23; mild steel, 12.25; H.T. steel, to 41.

It will be seen that wood is, in this respect, considerably stronger, weight for weight, than mild steel, though H.T. steel may be nearly twice as good, on the basis taken, as wood.

There are, however, several reasons which have militated against the use of high tensile steels. They are often difficult to work—that is to say, many varieties are difficult to roll or draw—and are consequently extremely expensive in the special light sections desirable for aeroplane work. Further, they usually depend for their strength on special heat-treatment

C represents an I-section in steel, again 4 ins. deep and weighing 1.8 lbs. per foot run. The web of this section is very thin and would probably buckle, and the resistance to bending sideways would be small, so that extra weight in the way of ribs to stiffen it sideways would be necessary.

Now a distributed load which produced a maximum stress of 1,000 lbs. per square inch in the fibres of A (a factor of safety of 13) would produce a stress of 10,000 lbs. per square inch in B—a factor of safety of only 6 if B is mild steel; while C under similar loading would be stressed to 7,150 lbs. per square inch—equivalent to a factor of safety of somewhat over 8. To give equal factors of safety to A, B would have to have a tensile strength of 60 tons per square inch and C something over 40 tons per square inch.

There is another point in favour of wood, which is that for similar loadings wood gives a much greater deflection than steel. Now, when a machine is stopped suddenly—by an abrupt landing, for instance—stresses are set up due to the momentum of the machine, which vary with the weight, with the square of the speed, and inversely with the distance in which stopping is accomplished. Part of this distance occupied in stopping is

accounted for by the "whip" of the parts of the machine itself, and the greater the whip the less actual stresses in the parts. Consequently, a wood-built machine actually is subjected to less stress from shocks and is therefore actually stronger against such shocks than a machine built of steel, which is equally strong against normal steady loads.

Glisseurs at Monaco.

This year a new class has been instituted at the annual Monaco motor-boat meeting, consisting of weird craft which mark the line of compromise between boats and aeroplanes. The official designation of these contraptions is "Glisseurs à Hélice Aérienne," and they may be, broadly speaking, either boats propelled by an aeroplane propeller, or hydro-aeroplanes without wings, both types being represented. It will be remembered that a Nieuport glisseur was shown at the Olympia Show, but it does not appear that anything of this make is entered at Monaco. Of the four examples shown in the exhibition ground, one is frankly an aeroplane sans wings, the Henri Fabre machine having a Gnome engine and tractor mounted in a regular aeroplane fuselage carried by a pair of sprung floats and a tail float, the tail having a small fixed surface, elevator, and rudder in conventional fashion. The "Glisseur Tellier II" has a single big float (about 10 ft. square) aft, with a "V"-type Panhard engine and propeller, and travels tail first, the fore end of the long hull being mounted on a small float which, one gathers, is to come right out of water when at speed. The hull or fuselage is built of 3-ply-wood on light longitudinal, and is carried by steel-tube framing from the floats, rubber-cord springs being wound on "axle" and frame to absorb shocks. It is said that this machine has been well tried, but one trembles at the thought of venturing out in anything but glass-smooth water! "Flying Fox" is a much more

When really large machines come to be built, and it is possible to use rolled steel girders of reasonable thickness as spars, the objection to steel on the grounds of liability to local damage will vanish, and the difficulty of obtaining sound timber in the sizes required will render steel construction inevitable; but, till then, wood seems likely to continue in favour.

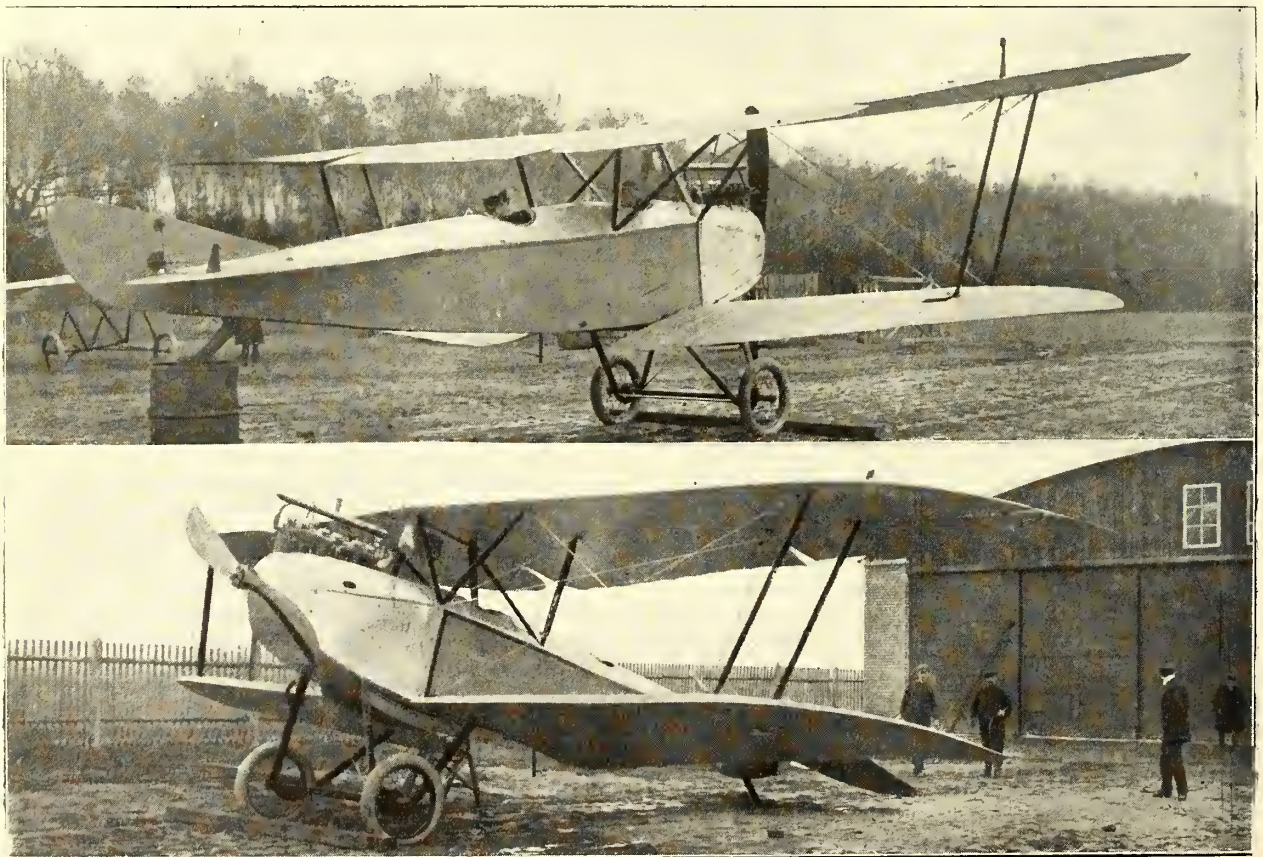
businesslike proposition, though why an air-cooled Renault aero-engine should be used in a hull that can never make the slightest effort to get out of water is not clear. The hull has several deep saw-tooth steps, which have been much reduced in depth since her construction, and the engine is right aft, driving a big propeller by chains. This is quite a seaworthy sort of job in comparison to the others, but will probably be much less fast. "Maicon" is a light, beamy float, with a small Gnome engine fixed on stilts. There is a narrow cockpit with two embryonic seats, and the whole is painted bright blue—presumably to match the waters of the Mediterranean. This may be quite extraordinarily fast, but she will certainly give her crew a good wetting! Summing up these machines, one can say that there are very great possibilities in them for use on shallow rivers or lakes, but that they must be tackled in a much more workmanlike manner. A. C. BURGOINE.

More Rumours Denied.

There is no truth in the report that the "Total Visibility" type monoplane, shown at Olympia, was designed by the creator of the latest fashions in ladies' hosiery.

Intégral Again.

M. Garaix' passenger height record, mentioned elsewhere, was made with the aid of an "Intégral" propeller. Also, so far as is at present known, 16 of the entrants for the Monaco Rallye were to use Intégrals.



The latest D.F.W. biplane, 150-h.p. Mercédès engine, for which a speed range of 110 to 51½ miles per hour, with full load, pilot, passenger, and fuel for 300 miles, is claimed.

Easter at Hendon.

Visitors to Hendon during the Easter Holidays certainly could not complain of lack of flying, for in spite of high winds, the air was full of machines every day.

On Good Friday no less than six pilots looped the loop. Mr. Hamel on his Morane, M. Noel on the re-built G.-W. Morane (80 Le Rhone), M. Marty on the other (60 Le Rhone), Messrs. Carr and Strange on "Lizzie," and Mr. Gooden on the Caudron (60 Anzani). No other aerodrome in the world has ever seen so many loopers in a day. M. Noel had never flown a Morane before, but he looped the first time up, and later did it again with a passenger. In addition, Mr. Birchenough, now one of the finest biplane pilots in this country, flew cleverly on a G.-W. box-kite, and Mr. Baumann flew Mr. Beatty's Wright (40-h.p. Wright motor). And all this in a wind of between 35 and 40 miles an hour, which prevented any racing.

On Saturday the wind moderated to a mere 30 m.p.h. or so, and there was a cross-country race over the usual course, resulting thus:—Mr. Birchenough (G.-W. box-kite, 9m. 43 secs.), 1st in 20m. 50secs.; Mr. Goodden (Caudron, 4m. 6secs.), 2nd in 22m. 10secs.; M. Noel (Morane, 80-h.p., scratch), 3rd in 22m. 35secs.; M. Marty (Morane, 60-h.p., 54secs.), 4th in 22m. 37secs.; Mr. Carr ("Lizzie," 2m.), last, was not timed in, and, after finishing, he went up high and fell about upside down in a highly diverting manner. During the afternoon Mr. Goodden went up through the clouds, and on re-appearing at about 2,000 feet, made four consecutive straight loops and two side loops before coming down. MM. Noel and Marty also looped frequently, the former with Mr. Lillywhite as passenger. Messrs. Birchenough, Cripps, and Strange carried many passengers on box-kites, as did M. Marty on the tandem Blériot. Mr. Barrs on a Deperdussin, 35-h.p. Anzani, flew well for his low power, Mr. Crawshaw flew high and well with a passenger on Miss Trehawke-Davies' Blériot (70-h.p.), which he has lately acquired, and Mr. Gates treated himself to an airing on a box-kite, flying with his usual neatness. Later, there was a speed match round the pylons between M. Noel and a passenger (scratch) on the 80 Morane, and M. Marty (26secs.) on the 60 Morane, the latter leading all the way and winning by 3secs. in 9 miles. M. Marty's speed was just over 70 miles an hour, which seems to show that re-building in the Grahame-White shops has rather improved the machine.

Sunday's Exhibition.

Sunday brought the finest day so far this year, and, despite the high wind, almost everyone was out. Mr. Hamel started looping at 3,000 feet and made 22 loops before landing, doing his loops in groups of three. The last was in the form of a particularly nasty-looking tail-slide. He let the machine drop tail first nearly 100 feet, so that she gathered considerable speed, and then pushed his lever forward so that the tail cut under the machine and she came over on her back like a flash. Mr. Hamel was jerked into his shoulder-straps so hard that "something went click" in his head, as he put it, and when he came down he was nearly deaf. One trembles to think of the strain on that upper cabane and its bracing wires. Dr. Leaky attended to him, and he was flying again till quite late, but his right ear remained deaf. During the afternoon Mr. Hamel looped with Mr. Robert Loraine, and again with Mr. Gates, who, as usual, showed that he does not allow his pilots to do anything he is afraid to do himself.

Mr. Goodden, now as fine a flier as any in this country, and a pilot who uses his head as well as his hands, distinguished himself by taking the little Caudron up to 6,000 feet and doing 17 loops on the way down. M. Noel with passengers on the 80 Morane, M. Marty on the 60, and Messrs. Carr and Strange on "Lizzie," kept on looping and flying in every possible attitude. Mr. Gates took up a box-kite, and did some of his favourite "futurist" flying (rag-time being out of date). Mr. Barrs flew his small Deperdussin. Messrs. Birchenough and Cripps flew box-kites. Mr. Manton, nowise shaken by his smash at Brooklands on Friday, borrowed a box-kite and did violent banked turns over No. 1 Pylon, incidentally scaring Mr. Hamel, who happened to be standing underneath and suddenly saw the box-kite apparently diving for him at less than 100 feet. Finally, to wind up with, Mr. Grahame-White himself took up the 80 Morane and showed that he has lost none of his old skill.

Easter Monday's Racing.

An enormous crowd stormed the gates at Hendon on Bank Holiday, and every vehicle which plied within a mile of the aerodrome was crowded to the last strap.

The first event, soon after noon, was a race between Mr. Grahame-White on a Morane-Saulnier monoplane, and Mr. Carr on the Grahame-White tractor biplane. After an exciting race of four laps, Mr. Carr won by a very short head from Mr. Grahame-White. Many exhibition flights were made by Messrs. Noel, Marty, Strange, Birchenough, Carr, Lillywhite, Howarth, and Cripps on Grahame-White biplanes and Moranes, and by Mr. Baumann on a 40-h.p. Beatty-Wright; Mr. Goodden on a 60-h.p. Caudron biplane; and Mr. Barrs on his 35-h.p. Deperdussin monoplane. Mr. Crawshaw made a long flight with a passenger on his Blériot. Every now and then one or other of these gentlemen would make a loop at an unexpected moment. Mr. Howarth, while flying with a passenger, received his "baptême de bois cassé" through turning before he had fairly got off the ground. Neither of them was hurt, and the passenger pluckily continued his flight in another machine.

The speed handicap provided some very good flying, Mr. Cripps and Mr. Lillywhite particularly distinguishing themselves by their wonderful cornering. In the first heat were Messrs. Marty (Morane), Cripps (Grahame-White biplane), Goodden (60-h.p. Caudron), Birchenough and Strange (G.-W. biplanes), who finished in the order named, and Messrs. Lillywhite (G.-W. biplane), Carr (G.-W. tractor biplane), Noel (Morane), and Baumann (Wright), were in the second heat. Mr. Carr and Mr. Noel looped violently immediately after the race was finished, the latter carrying a mechanic as passenger.

After the second heat, Mr. Hamel gave a display of looping and tail sliding, which evoked much applause from the multitude. The final was preceded by a false start—the first one within memory of man—and eventually Messrs. Cripps, Lillywhite, Marty, and Carr finished in the order named. Mr. Hamel thereafter gave another display, accompanied part of the time by M. Marty on another Morane. After the day's work was done he took up several passengers and looped with them, Mr. C. C. Turner, certificated aviator, our valued ally of "The Observer" and "Pall Mall," and Mr. E. V. Sassoon being among the number. The gate was estimated at 50,000.

A Blériot Move.

After May 1st the General Offices of the "Blériot Aeronautes" will be transferred to the firm's new works at Brooklands Aerodrome, Byfleet, Surrey, where all communications should be addressed. Letters addressed to "Brooklands, Weybridge," take considerably longer in being delivered as the aeroplane sheds are in the Byfleet district.

The New D.F.W.s.

Two new type D.F.W. biplanes have recently been produced. The standard military type with a 100-h.p. Mercedes engine is now timed to do 68 m.p.h. with 6 hrs. fuel, a pilot and passenger on board, and it has to climb 3,280 ft. (1,000 metres) in 5 mins. 15 secs. It is built all of steel except the wing ribs.

The second type with a 150-h.p. engine, either a Mercedes, an Austro-Daimler or a Rapp, is claimed to have flown at a maximum of 110 miles an hour and at a minimum of 51½ m.p.h., officially timed at Doeberitz, with pilot, passenger, and fuel for 300 miles flying.

New Company.

Jordan & Sons, Ltd., Chancery Lane, W.C., advise that the following company has been registered:—

Hewlett & Blondeau, Ltd. (135,051), Omnia Works, Vardens Road, Clapham Junction, S.W.—To acquire business of H. B. Hewlett and G. Blondeau, carried on at above address, and to carry on business of manufacturers and designers of aeroplanes, hydroplanes, aerobus airships, balloons, and every type of flying machine or aircraft, etc. Registered April 3rd with capital £10,000 in £1 shares. Directors (and subscribers for 1 share each): H. B. Hewlett, 7, Northwick Terrace, N.W., married woman; G. Blondeau, Omnia Works, Vardens Road, S.W., engineer. Each entitled to hold office while holder of 1,000 ordinary shares. Qualification of ordinary directors 100 shares.

Flying at Brooklands.

There was no flying till Wednesday, and on that morning occurred the fatal accident to Sergeant Deane, described elsewhere. The accident cast a gloom over Brooklands, where Deane was very well liked.

An Army M. Farman passed over Brooklands just after the accident, and an Army Avro arrived about 10 a.m., and left later. Mr. Manton on the 70 Blériot, and Herr Roempler, D.F.W., were out in the evening. The schools were out on Thursday as usual.

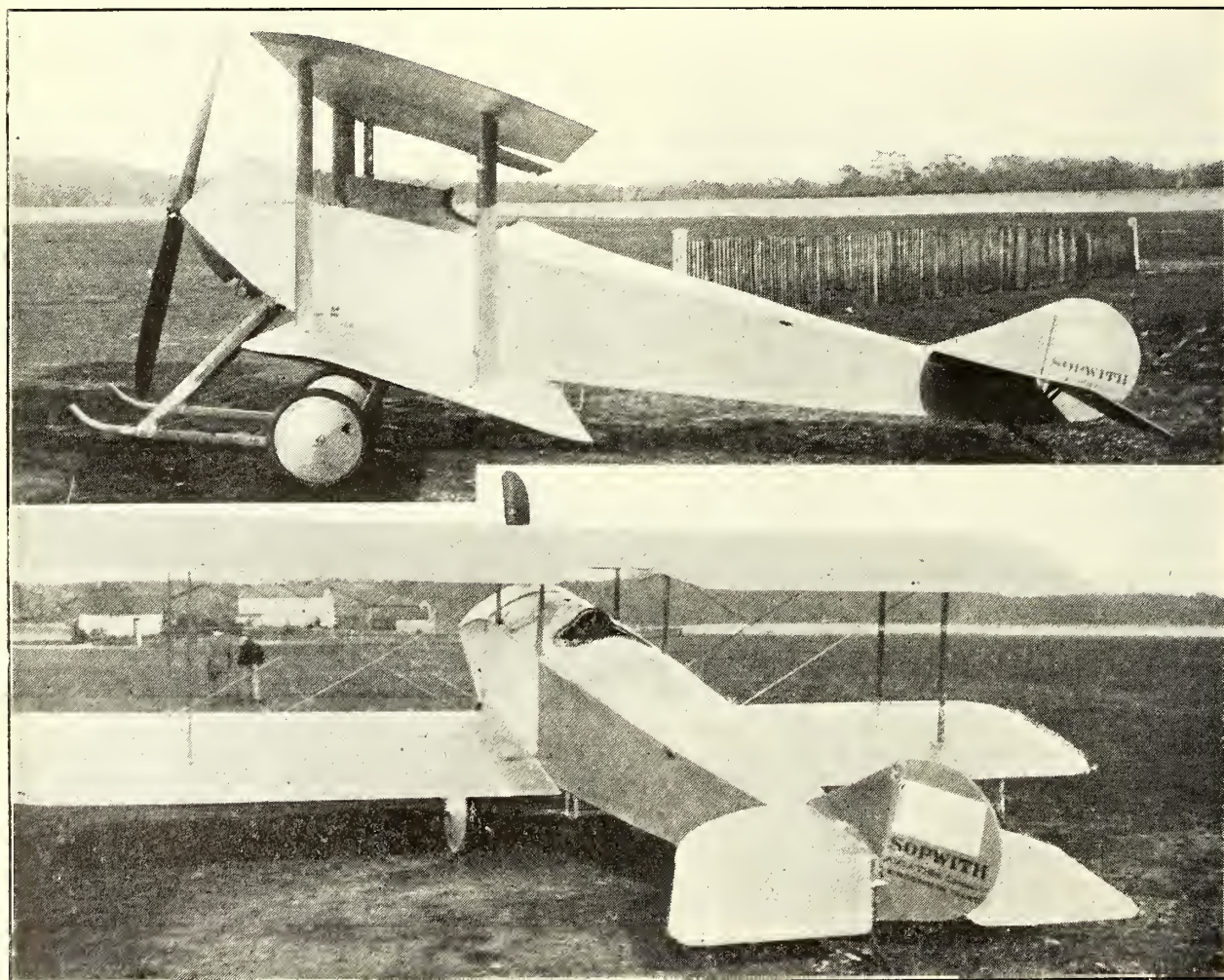
On Friday there was little doing owing to high wind. Mr. Manton on Mr. Hucks' 70 Blériot was getting up head to wind over the sheds at about 100 feet when the petrol pipe broke. To save coming down on the sheds, as the strong wind held him stationary, he had to do a flat turn to the left, which resulted in his coming down on a wing tip about fifty yards from the fence, and smashing everything in the machine except himself. Later Mr. Pixton made his first flight on the newest Sopwith "tabloid"; it was what the French would call an "emotioning" performance, as he had never flown one of these small projectiles before, but he landed safely at about twenty miles an hour.

On Saturday there was much flying, most of the pilots being out, and on Sunday Mr. Barnwell came out in a new role, for he looped four times on the Sopwith tabloid, an astonishing performance considering that he is somewhere between thirty-five and forty years of age, and has been flying since 1909.

His first three loops were done gently, but at the fourth he went at it fast, and on pulling up to the loop sat through the seat-bearers. Fortunately he was able to get down safely, though it somewhat disturbed the elevator controls. The jerk also strained some of the wing ribs, which however did not seem to upset the flying of the machine next day. The same day Mr. Lan Davies flew his Avro tail down right over the enclosure, and was "warned off" by the Brooklands authorities in consequence.

Easter Monday Racing.

Apart from one of the finest day's motor racing yet seen at Brooklands, something like a record crowd saw some very fine flying. The first machine out was a Bristol box-kite piloted by Mr. Merriam, who came down with engine trouble outside the track, but got up again before the relief wagon reached him. During the day Sub-Lieuts. Marix and Fowler, R.N.R., had arrived on a Sopwith from Eastchurch. Several other naval officers were present, and to give them a show with the Admiralty's latest purchase, Lieut. Collet, R.M.A., brought out the D.F.W. and took them in turn as passengers, showing that the machine can, when properly flown, do most things an aeroplane is wanted to do. Mr. Marix also took the machine up, and it flew excellently. Herr Roempler on the other D.F.W. worked hard carrying passengers. Mr. Alcock flew the Sunbeam-Farman most skilfully. Messrs. Barnwell, Elsdon and Knight on Vickers machines of various kinds were also out. Mr. Hunt, late of Eastbourne, flew precariously on



The latest single-seater Sopwith "Tabloid," the first of a dozen for the Army. On this machine Mr. Barnwell looped the loop on Easter Sunday and Monday, and Mr. Pixton gave a wonderful exhibition of speed flying.

decrepit Blériot, which badly needs recovering. In the later afternoon there was a race which brought out a wonderful variety of machines. It resulted thus: Mr. Barnwell (Vickers-Blériot, 4 mins. 12 secs. start) 1; Mr. Knight (Vickers biplane, 6 mins. 42 secs. start) 2; Mr. Pixton (Sopwith "tabloid" scr.), 3—all in a bunch. Among the "also rans" were Mr. Waterfall (30 secs.) on the Martinsyde, Mr. Alcock (2 mins. 8 secs.) on the Sunbeam-Farman, Herr Roempler (2 mins. 20 secs.) on the D.F.W., Mr. Eldson (3 mins. 12 secs.), who flew a very good race on the Vickers No. 5 monoplane—thus celebrating at once the birth of a daughter and heiress (on whom congratulations) and the last flight of old No. 5, who is now to retire after much honourable work—and lastly, Mr. Merriam (8 mins. 24 secs.) on a Bristol school biplane. To give 8 mins. 24 secs. start in about nine miles and beat it by half a minute or so shows that the "tabloid" must be moving fairly fast. As usual, no finishing times were available at the sheds, and one would suggest a blackboard outside the Blue Bird as a useful addition in future.

After the race Mr. Harry Busteed, who had flown the Blériot "Scout" the sixty miles or so from Lark Hill on Salisbury Plain in twenty-seven minutes in the morning, came out at the same time as Mr. Pixton on the little Sopwith and the two gave an exhibition of flying which was a trifle too thrilling, especially when the big Sunbeam-Farman went up and lumbered about in the way of the speed machines. Once Mr. Busteed, apparently busy watching Mr. Pixton, passed within ten feet of the Farman's chassis without Mr. Alcock and him seeing one another. There will have to be some definite and rigid rules of flying if these ultra-fast machines are to be used in aerodromes without causing fatal smashes.

Thereafter, Mr. Barnwell went up on the Sopwith and looped cleanly twice, much to the joy of the crowd and the sorrow of his friends who had hoped that his purely scientific lapse from the strait path of respectable flying on the previous day would suffice him. However, it was a highly diverting time, the general interest to the experienced and the enthusiasm of the public surpassing anything one was used to in the palmiest days of Brooklands flying.

Flying at Bournemouth.

Mr. Gustav Hamel gave a fine display of flying at Bournemouth on Saturday last. He made a record in looping the loop by doing twenty-one vertical circles in a descent from 2,300 feet. He also looped the loop with Prince Leopold of Battenberg, not with Prince Maurice as generally reported. Now that two princes have looped, the feat may literally and figuratively be described as "sport among the upper circles."

Flying at Coventry.

A big crowd in the grounds of Whitley Abbey, Coventry, on Easter Monday, watched Mr. B. C. Hucks "looping the loop." On one occasion he remained upside down in his Blériot for fully two minutes.

On the previous Saturday he flew at Bristol.

Flying at Paignton.

On Thursday last, M. Salmét, carrying Comte Fitz-James as passenger, left Buc on a Blériot tandem (50-h.p. Le Rhone), landed at Croydon, and later reached Hendon. On Saturday he left for Paignton, near Torquay, to start his advertising tour for the "Daily Mail." One trusts that, being a year older, M. Salmét will now give up his bad habit of playing practical jokes on his audience by diving at them and missing them by a few feet, or getting off in their faces and just clearing their heads. He is far too good a flier to need such cheap and dangerous methods of causing a sensation, and one serious accident would do more harm than any benefit his employers can receive from his advertising. M. Salmét will use an Avro waterplane as well as a Blériot, provided the new Avro float arrangement works satisfactorily on the sea. The Blériot water chassis also has to be tested for rough sea work, though it has been well proved on smooth water.

The "Daily Mail" advertisement tour opened at Paignton on Easter Monday. Mr. Raynham on his favourite 80 h.p. Avro, fitted with the float-carriage off the Show machine, made a very fine flight in the morning, but on alighting a second time twisted a float strut, a performance anticipated in this paper's Show report. The floats were immediately changed for the

land-carriage. Mr. Raynham showed the crowd that a British pilot was at least the equal of the best foreign product. The "Mail" describes M. Salmét's taking his seat in the Avro for the first time as "the great event of the day." M. Salmét honoured Mr. A. V. Roe by stating the Avro to be "a very wonderful machine." One hopes he will fly it as well and with as much consideration for the onlookers' safety as Mr. Raynham does.

M. Salmét's Blériot was brought down by engine trouble at Southampton on Saturday, on his way from Hendon.

Flying at Bognor.

On Saturday, April 11th, Mr. Cecil Pashley, accompanied by Mr. Hale, despite a gale, flew to Bognor. The journey of eighteen miles took 56 mins., but the crowd, who seemed to understand the difficulties he had had to contend with, accorded him an enthusiastic welcome. The wind was too strong to carry through the intended race between the Farman and a Mercedes car, but later he returned to Shoreham in 16 mins. at over 65 m.p.h.

Flying at Shoreham.

The Cedric Lee "Doughnut" emerged from its hangar during the week-end and was tested by that versatile pilot Mr. Gordon Bell. There is no mistaking its climbing powers, nor its speed, but one would be happier about its stability if one could see it up in a respectable wind. On Friday last a slight argument with terra firma resulted in a broken tail skid, but on Sunday morning it made a reappearance and flew several wide circuits.

In the evening Mr. Bell made circuits over Worthing, Bungalow Town, Shoreham and Lancing College.

The Week's Work.

Weather Report for Week Ending April 12th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ..	Imposs.	Imposs.	—	—	Windy	Very Windy	—
Eastchurch ..	Windy	Windy	Windy	Windy	Wind	Fine	Fine
Hendon	—	—	Fair	Fine	Fine	Fine	Fine
Montrose	Gale	Gale	Fair	Var'ble	Gale	Bright	—
Salisbury Plain	Rain	Rain	Bad	Bad	Fair	Windy	Fine
Shoreham... ..	Fine	Fine	—	—	—	—	—

School Reports.

Brooklands.—AT VICKERS SCHOOL: Instructors during week: Messrs. Barnwell, Knight, and Eldson. Pupils with instructor on machine: Capt Phillips (1), Lt Underhill (3) (biplane). Figures of 8 or circles alone: Lt Acland (4), Mr. Wilberforce (1) (biplane). Machines in use: Two school biplanes.

AT BRISTOL SCHOOL: No school work owing to bad weather. School closed on Thursday for Easter holidays.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors during week: Messrs. Howarth and Strange. Pupils with instructor on machine: Messrs. Smiles, Moore, and Major Piercy. Strts or rolls alone: Prince Sapieha, Mr. Smiles, Mr. Parker. 8's or circles alone: Prince Sapieha, Messrs. Kershaw and Parker. Machines in use: Grahame-White school biplanes.

BEATTY FLYING SCHOOL.—Instructor during the week, M. Baumann. Messrs. Watts and Stewart joined School for extra practice, and, during the holidays, Mr. Watts put in 20 mins. and Mr. Stewart 12 mins. Mr. Ding out with instructor during the week and put in 48 mins.

Eastchurch.—The Hon. Maurice Egerton was out for two flights on his Short (50 Gnome) on Sunday. Prof. Huntington made a flight on his own machine on the same day.

Shoreham.—AT PASHLEY SCHOOL: Instructor during week: Mr. C. L. Pashley. Pupils, with instructor, on machine: Messrs. Grey, Mortimer, Willett, Hale, Nichol, and Dawson (new pupil). On Saturday, April 11th, Mr. C. L. Pashley to Bognor in semi-gale. Took 56 mins. to cover 18 miles. On Sunday took up Miss Ida Crispi and Mr. Fred Farren.

SHOREHAM FLYING SCHOOL.—Instructor during week, Mr. W. H. Elhott. Pupils, with instructor, on machine: Messrs. Purnell, A. Maskell, P. H. Maskell, Aikman, Sholto-Douglas, on school biplane. Strts: Messrs. Purnell, A. Maskell, P. H. Maskell, Aikman, on Avro Green.

Salisbury Plain (BRISTOL SCHOOL).—No school work owing to bad weather. School closed on Thursday for Easter.

ANZANI AERO ENGINES

1914 MODELS!

25 H.P. 3-CYL. "FAN." 70-80 H.P. 10-CYL.
 25 & 30 H.P. 3-CYL. "Y's." 80-90 H.P. 10-CYL.
 40-45 H.P. 6-CYL. 100 H.P. 10-CYL.
 50-55 H.P. 6-CYL. 125 H.P. 10-CYL.
 60-65 H.P. 10-CYL. 200 H.P. 20-CYL.

All Enquiries to be sent to

THE BRITISH ANZANI ENGINE CO. LTD.

30, Regent St., Piccadilly, S.W.

'Phone: 280 Gerrard.

Wire: "Anzani, Piccy," London.



NOTHING BETTER

A. V. ROE & CO., LTD., MANCHESTER

SOUTH-EASTERN & CHATHAM RAILWAY.

THE

MOTOR BOAT RACES AND EXHIBITION

AT

MONTE CARLO

(April 5th to April 20th.)

Special Express Services to the Riviera
leave Charing Cross and Victoria daily.

∴ **Via Dover - Calais and** ∴
Via Folkestone - Boulogne.

Through Carriages and Sleeping Cars from
Calais and Paris.

**Fast Turbine Steamers to Calais and
Boulogne.**

For full particulars of Fares and Services apply at any of
the S.E. & C. Railway's London Terminal Stations.

FRANCIS H. DENT,
General Manager.

HANGARS.

Any size built and fitted with

PERFECT SLIDING DOORS

obviating all the disadvantages of every present
system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

GARAGES, CLUB HOUSES
and other buildings. *Estimates Free.*

WIRE-WOVE ROOFING COMPANY,
108, Queen Victoria St., London, E.C.

SPARS and all
BOOMS AEROPLANE
PARTS to
makers' own designs

Send us your Requirements and let us quote for you.

R. CATTLE, **STRUTS**
Machine Woodworking
to the Trade,
27 Wybert St.
Stanhope St., N.W. **SKIDS**

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this
office by 6 p.m. MONDAY, to ensure insertion.

For the convenience of Advertisers, replies can be received at
the office of THE AEROPLANE, 166, Piccadilly, W.

Special PREPAID Rate—18 words 1/6; Situations
Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND
AND ABROAD." (By Arthur E. Edwards,
F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS &
CO., LTD., Patent Agents and Consulting Engineers,
Chancery Lane Station Chambers, W.C. 'Phone 4536
Holborn.

PATENTS. Instructive leaflet Free, from STANLEY,
POPPLEWELL & CO., Chartered Patent Agents,
38, Chancery Lane, London, W.C.

THE owners of British Patent No. 10,633 of 1912,
entitled "Improvements in Helicopters," are
desirous of disposing of the patent or entering into
working arrangements, under licence or otherwise,
with firms likely to be interested in the same. A
copy of the patent specification and full particulars
can be obtained from and offers made (for transmission
to the owners) to MARKS & CLERK, 57 and 58, Lincoln's
Inn Fields, London, W.C.

PATENTS.—How to Patent Inventions. Particulars
with advice, sent free.—Write, KING, Registered
Patent Agent, 165, Queen Victoria Street, London.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE success of **THE GRAHAME-WHITE SCHOOL OF FLYING** is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the **GRAHAME-WHITE SCHOOL**, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

W. H. EWEN SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

LEARN to Fly at the Premier English Aviation School. Tuition given on Avro tractor biplanes, Blériot monoplanes, Caudron biplanes, Deperdussin monoplanes. Moderate inclusive fees, flying and constructional. **PASSENGER FLIGHTS AT MODERATE CHARGES.** Exhibitions of "looping the loop" and upside-down flying, etc., given by J. Lawrence Hall.—For full particulars apply to **HALL AVIATION CO., Aerodrome, Hendon, N.W.**

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—Tuition on Avro tractor biplanes. Special reduced inclusive fee, £40, during the winter months.—Full particulars from **THE SHOREHAM FLYING SCHOOL, Shoreham Aerodrome, Sussex.**

LIVERPOOL AVIATION SCHOOL, Waterloo, near Liverpool.—Tuition, Passenger Flights, Exhibitions, on Blériot monoplanes (3). Melly's infallible release gear. Terms and prices on application.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIÈRE'S famous Integral Propellers hold all records; used by all leading Aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD., 307, Euston Road, London, N.W.** Telephone: 912 North. Telegrams: "Aviprop," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London.** Tel. 834 Bank.

BLÉRIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE, 166 Piccadilly, W.**

EMPLOYMENT.

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—**WULFING, Aeronautical Engineer, 2, Barclay Road, Waltham Green Station.**

WANTED immediately, experienced draughtsmen, aeroplane fitters, erectors, and woodworkers.—Apply, **SIR W. G. ARMSTRONG, WHITWORTH & CO., Ltd., Aviation Dept., Gosforth, Newcastle-on-Tyne.**

EXPERT motor mechanic of 10 years' experience will give services in return for tuition in flying.—**MILLARD, Engineer, Chesterfield.**

WANTED, one or two experienced welders for aeronautical work; men experienced in aluminium welding preferred.—Apply Box 554, **THE AEROPLANE, 166, Piccadilly, W.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road.** 'Phone 4770 Wall.

LUNCH in the "SUNPARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MODEL aeroplanes and accessories. Send stamp for our illustrated catalogue. Models or parts made to customers' own designs.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

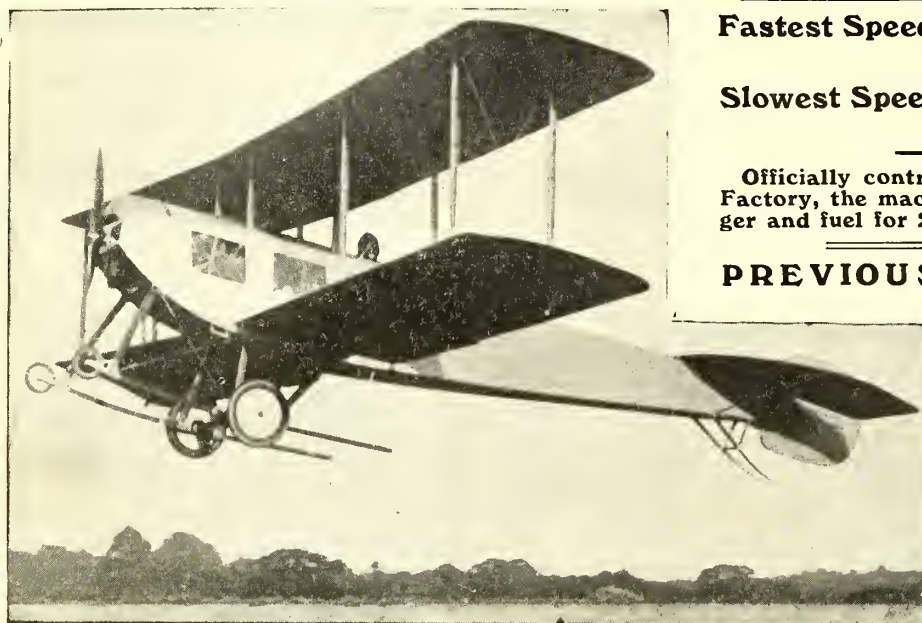
T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

'Phone: Kingston 669.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our **New Illustrated Models Catalogue** now ready, Contains **Sopwith Tractor, Deperdussin, Blériot, Canard, Clarke Mono**, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic rod, per doz. yds.

EFFICIENCY is the characteristic of SOPWITH AEROPLANES.

The Latest SOPWITH BIPLANE (80 h.p. Gnome) beat all WORLD'S RECORDS FOR EFFICIENCY.



**Fastest Speed 92 miles
(154 kms.) per hour.**

**Slowest Speed 36.9 miles
(61 kms.) per hour.**

Officially controlled by the Royal Aircraft Factory, the machine carrying pilot, passenger and fuel for 2½ hours in the air.

**PREVIOUS RECORDS on
the preceding type
of SOPWITH
BIPLANE (80 h.p.
Gnome).**

**British Height Record
(Pilot alone) 11,450 ft.**

**British Height Record
(Pilot and 1 Passenger)
12,900 ft.**

**British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.**

**WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.**

**ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.**

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

Telegrams :
"SOPWITH, KINGSTON."

WONDERFUL FLYING AND AIR RACING AT HENDON.

Races Every Thurs. & Sat. from 3.30 p.m.

To-day, Thur. Ap. 16. Biplane Speed Contest
(Commencement of Weekly Air Races on Thursdays during
the Summer Season.)

Fri. Ap. 17. Flying Meeting in Aid of Dr.
Barnado's Homes.

NEXT SAT. AP. 18. 2nd SPRING MEETING.
Nine mile Speed Contest at 3 p.m.

Thur. Ap. 23. 3 p.m., Speed and Altitude Tests.

„ „ 8 p.m. Illuminated Night
Flying and Firework Display.

Special Exhibition and Passenger Flights, every Sunday
afternoon, from 3.0 p.m. till dusk (weather permitting)

Passenger Flights daily from £2 2s. Od.
Admission 6d., 1s., 2 6 Motors - - 2 6
Children Half-price. (Includes chauffeur.)

London Aerodrome, Hendon, N.W.

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: Phone—Kingsbury 129 (4 lines). Wires—"Volplane, Hyde, London."
LONDON: 166 Piccadilly, W. Phone—Mayfair 5365. Wires—"Caudigram, Picry,
London."



THIS is an illustration of the Cover of the 1914 Fixture List, which contains numerous illustrations of the Flying at Hendon, a complete list of Fixtures and Events for 1914, and particulars of Passenger Flights, Routes to Hendon, Season Tickets, etc. Free on application to London Aerodrome Offices, 166 Piccadilly, London, W.

THE AEROPLANE



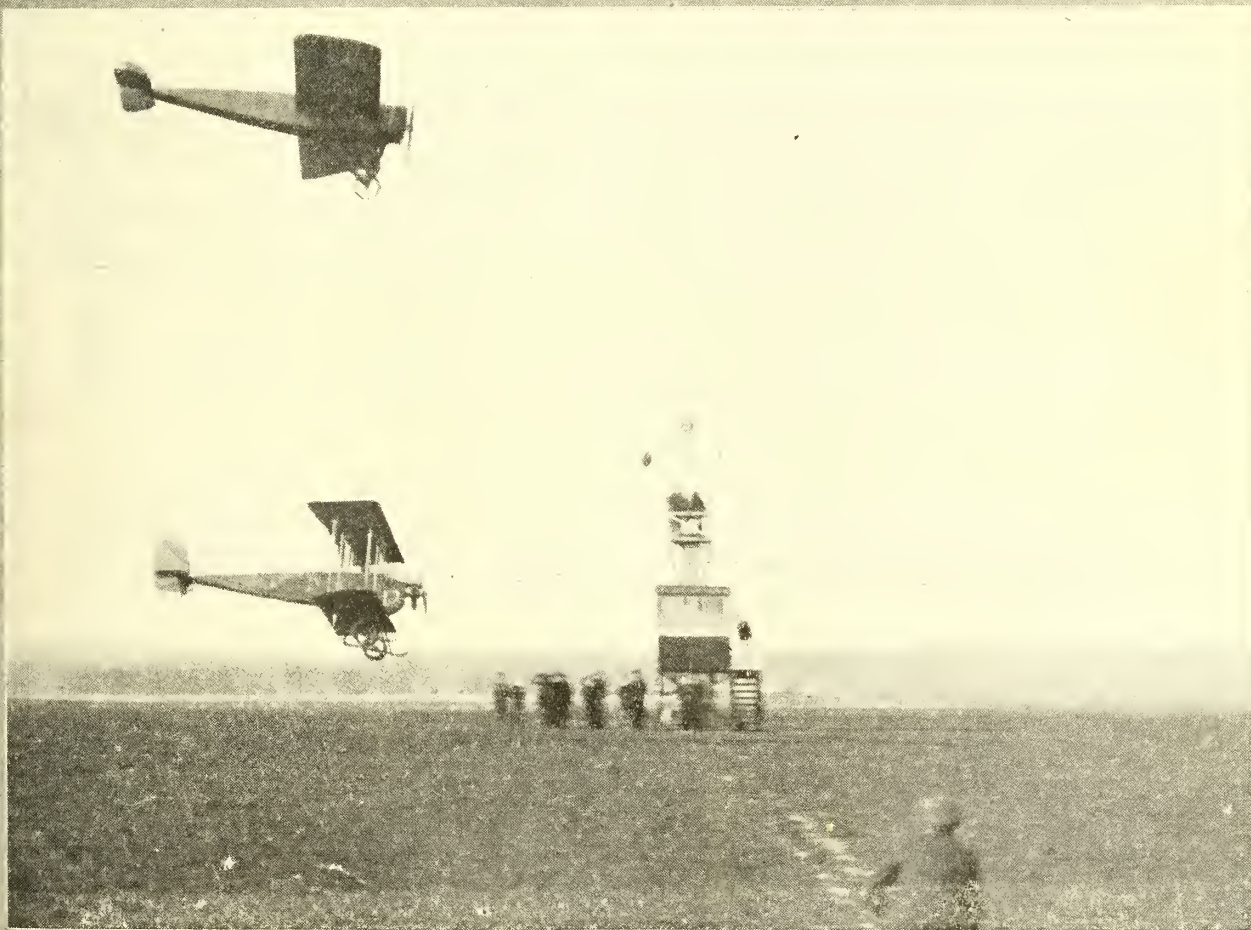
Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, APRIL 23, 1914

No. 17

A CLOSE FINISH.



M. Marty on the Morane 60-h.p. Le Rhone, and Mr. Carr on the Grahame-White tractor (50 h.p. Gnome) finishing in the Cross-country Race at Hendon on Saturday.

The "Bristol" Flying Schools

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

INTEGRAL PROPELLERS

(L. CHAUVIERE)



FOR SEAPLANES

As used by the following winners at the Monaco Rally:—

1st Garros	4th Renaux
2nd Garros	5th Verrier
3rd Brindejone	6th Malard

Etc., etc., etc.

THE INTEGRAL PROPELLER COMPANY, LTD.

Offices and Works: 1b, Elthorne Road, Upper Holloway, N.

Telegrams: "Avirop (Upholl), London."

Telephone: Hornsey 2345.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " " "	3	3	6 " " " "	5	6
12 " " " "	6	6	12 " " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

Ballooning versus Flying.

Just by way of relieving the monotony of routine, and to vary for the readers of this paper the continuity of *obiter dicta* which usually appear in this section of THE AEROPLANE, I propose this week to indulge in a three-cornered argument. To tell the plain truth, there are so many things which must go into the paper this week, that there is no room for the report of the Aeronautical Society's usual fortnightly meeting as well as a leading article, because paper is inexhaustible, and, as my friend the printer always tells me when I try to give readers the benefit of a few extra lines in a page, "Type isn't made of india-rubber." Consequently, as the Aeronautical Society's earnest efforts to help the progress of aviation must not be neglected, I propose to give the papers read last week by Mr. Griffith Brewer and Mr. Fletcher the leading position, and to content myself with commenting on them as we go along. Even so, it has been necessary to abridge their remarks, but I have endeavoured not to cut out anything that really affects their arguments.

The papers were read at the Royal United Services Institute on Wednesday the 15th, and the lecturers were honoured by the presence in the chair of Brigadier-General David Henderson, C.B., D.S.O., Director-General of Military Aeronautics, who continues to add to his onerous official burdens the voluntary one of regularly attending and taking part in the discussions at the Aeronautical Society's meetings, and I think everyone will agree with me when I say that General Henderson has never spoken without genuinely assisting the cause to which he has devoted himself.

The first paper given on Wednesday was that of Mr. Brewer, who opened his remarks by saying:—

"The object of this paper is to show that, in spite of the strides aviation has made, the balloon still has its part to play in the navigation and study of the air. I venture to suggest that the much-despised balloon is a means for acquiring a knowledge of the atmosphere which cannot be gained when tearing through the air at fifty miles an hour. A balloon floating freely in the air moves at the exact speed of the wind, and by observing the apparent movement of the ground immediately below, the speed of travel of the air may be accurately measured, and thus the true direction and speed of the wind at various altitudes may be noted.

"Complete silence and freedom from vibration enable the aeronaut to make accurate observations, whilst a sense of security due to the car being in constant stable equilibrium facilitates calm thought and appreciation of atmospheric phenomena, which cannot be so readily experienced when flying on an aeroplane. A nervous man can, by being lifted calmly into space, become accustomed to looking down from considerable heights without that nervousness which is a considerable strain to some aviators; and, having once acquired this familiarity with height, he may then undertake the lessons in control of a machine."

It seems to me that having once realised that the air does travel in different directions at different altitudes, little further knowledge can be gained in a balloon, for the direction and speed keep on differing and the altitudes at which they differ also differ, so there is too much differing going on for any exact knowledge to be gained, also the balloonist does not seem to acquire the knowledge which is really useful to the aviator.

For instance, any pilot will tell you that there is generally a stratum of bumpy air between two currents differing in direction, which gives warning of the change—as Major Brooke-Popham pointed out some months ago—whereas apparently the balloon ascends almost undisturbed through the bumpy air, and change of wind is only noticed when the direction of drift is seen to alter.

As to the nervous man, it seems to me that one is much less likely to feel nervous in a good stout aeroplane, which is under perfect directional control even when the engine stops, than when slung in a kind of glorified hamper by a few bits of string under a bag-full of highly inflammable gas, which may burst through carelessness, or sheer cussedness, and at best is under no kind of directional control when landing. Give the average man a wheel or lever to hold, or let him watch someone else controlling an aeroplane, and he will feel far less frightened as a passenger in an aeroplane than in a balloon.

Personally, I am an abject coward, and I have no head for height, but the only thing that scares me in an aeroplane is the fear of the pilot making a mistake or of something coming undone in the machine. Give me a machine and a pilot in which and whom I have confidence, and I am less afraid than in a taxi, but going up in a balloon, flying in a B.E., or sitting on a fourth floor window-sill with one's legs hanging over nothing strike me as being about equally nerve-shaking. I do not mention this as proof that Mr. Brewer is wrong, but merely as the point of view of one who, like Mr. Kipling's Babu, is a "fearful man." Anyhow, I do not believe that ballooning is going to teach pupils to be any happier when high up.

However, to return to Mr. Brewer:—

"The reason the air cannot be studied properly from an aeroplane is that an aeroplane must, to remain in the air, be travelling at high speed. Can you imagine anyone wishing to find out all about the movements of the wind confining his study to the bridge of the 'Lusitania.' Compare with this the advantage the same individual would obtain if he obtained permission to sit on the top of the Eddystone Lighthouse. There every puff of wind that blew could be registered correctly in the direction from which it came."

Quite so, but if the lighthouse moved away with each gust, as a part of that gust, in the way that a balloon does, one wonders how one could register anything.

"Mr. Horace Darwin has described a most interesting theory of the way migrating birds guide their flight by the sound of distant breakers on the sea shore. In support of the theory, he kindly referred to my having heard the breakers of the sea shore on the North of France when in a balloon still over England. The hearing of those breakers is impressed vividly on my mind, because it was the only confirmation Mrs. Assheton-Harbord and I had that the wind we had trusted to carry us to France was worthy of the confidence we had placed in it."

One could have wished Mr. Brewer to have been more specific here. If still over England and going towards France, it would seem to the ordinary man that one would be more likely to hear the breakers on the English coast, for even with an off-shore wind the sea can break fairly hard, and I

have not found that the waves on the North of France have any distinctive French accent by which one could identify them.

"In a balloon, the absolute stillness enables the slightest sound to be heard, and, as Mr. Horace Darwin points out, 'the intensity of the sound from a single source, such as a dog barking, will vary inversely with the square of the distance; but if the sound comes from a line instead of from a point, its intensity will only vary inversely as the distance.' Mr. Mervyn O'Gorman points out that this is one of the reasons why the sea breaking on the shore can be heard at such a distance. When aeroplane engines are fitted with efficient silencers, those who fly will be able to check their course and position by sound, in the way Mr. Darwin now suggests migrating birds are in the habit of doing."

Has Mr. Brewer ever been on a sailing-ship with even a gentle wind whistling through the stays? Leaving out the lapping of the waves, it is quite hard to hear anything at a distance. On an aeroplane doing 60 to 80 miles an hour, even with a perfectly silenced engine, or to-day with the engine switched off, although one can converse comfortably behind a shield, one can hear no sounds from outside, and one is never likely to do so, except perhaps the sound of heavy guns.

"On several occasions the practice of ballooning has suggested explanations to my mind of the cause of atmospheric movements, which, if true, must be of value to all who navigate the air. One example of this is an explanation of what happens in the atmosphere in the summer-time, when, after a stiff breeze all day, the night falls with the air dead calm, the stars come out brightly, and the smoke goes straight up from the chimneys, and yet the wind continues to travel fast above. The conclusion I came to was that the air split at nightfall into upper and lower layers, the upper one continuing to travel, while the lower layer comes to rest, and in the morning the two joined again."

Mr. Brewer then quoted two examples of balloons starting and landing in evening calms, and travelling fast in between. He continued:—

"Every balloonist of any experience must have observed that winds travel in definite layers. A wind up to perhaps 2,000 ft., blowing from the south-west, may change to west or even north-west immediately above that altitude. The two layers of air travel smoothly, with only the smallest area of disturbance between the two layers."

One may observe this also from the ground, for one often sees two layers of clouds moving in different directions.

"I now come to the third point—namely, why the wind should fall calm on the ground whilst remaining in swift motion above. It is obvious that wind travelling in contact with the ground must meet with considerable resistance. Consequently, the air under the influence of friction-drag caused by proximity to the earth's surface tends to arrest the progress of the air above, and if the tenacity of the large bulk of air be sufficient to move the ground layer, the latter travels with it; if it be insufficient, then the air splits, leaving the lower portion stagnant, and the upper portion travelling at the original pace. This would explain why they separate, but it does not explain why they join again when the sun rises."

One may suggest at a guess that the earth remains warm, while the upper air cools rapidly; consequently, as the warm air rises from the earth it forms a stratum of disturbed air where it meets the cold air above, and this stratum forms a breaking layer between the still and the moving air. Aeroplane pilots flying late in the evening have frequently noticed this bumpy layer between ground calm and a breeze aloft. The height of this layer varies according to the warmth of the day and the density of the air, which apparently depends on moisture.

As to the layers joining when the sun rises, Mr. Brewer produced the following ingenious theory:—

"I assume that a constant mixing between the travelling atmosphere and the ground layer is necessary that the ground layer may be moved under the influence of the upper layer. At night there is nothing to cause disturbance in calm air on the ground, but when the sun comes out in the

morning, objects on the ground become slightly heated, and cause bubbles of air to rise from the stagnant portion below into the portion which is moving above. A bubble of warmed air rising soon becomes a twisting column, and when you think that the proportion of thickness between the two layers of air may be likened to two table-cloths spread over a table, it will be readily realised that when some thousands or millions of these columns or bubbles are rising from one layer to the other layer, and similar quantities of cooler air are descending to take the place of the rising air, then the effect is similar to the effect of the upper table-cloth becoming pinned to the stationary under table-cloth, with the result that the two layers again move along together.

"In order to show that I have not digressed too far away from my subject, I will endeavour to illustrate how an understanding of these wind conditions might have saved the lives of perhaps more than one flier. Imagine an aeroplane coming down from a great height, head on to a wind blowing twenty miles an hour. On arriving, say, 100 ft. from the ground, the machine runs suddenly into the stagnant ground layer of air, and the flying speed through the air is immediately reduced by 20 m.p.h. The machine naturally stalls and dives, and the altitude being insufficient to recover control, the machine strikes the ground before control can be recovered. Many accidents have occurred owing to the diving of machines, just prior to landing, when perhaps 100 ft. in the air, and I cannot help thinking that wider knowledge gained in ballooning may add to the understanding of the air, and thus increase the safety of pilots when flying and prove beneficial in their training."

One can hardly agree with Mr. Brewer on this point. The change from breeze to calm is not so sudden as to take a pilot by surprise, and even if it were, a hundred feet is ample distance in which to correct so slight a drop in wind-speed. Plenty of gusts have bigger and more sudden variations.

On the whole, Mr. Brewer does not seem to have made out his case for the balloon, for he has not shown that balloonists know anything which aviators do not already know. The real trouble is that aviators know these things and many more, and have so much confidence in their own skill and in the controllability of their machines that they simply do not worry about them. Also, aeroplanes are now flown in winds so much fiercer than those in which any balloon dare venture out, that we are far past the point where balloons can help us, so far as gaining knowledge of the behaviour of the air is concerned.

Lieutenant Fletcher, R.E., on Military Aviation.

Let us now turn to Mr. Fletcher, who is a lieutenant of Royal Engineers serving with the Royal Flying Corps, and has, I believe, been appointed for airship duty with the Naval Air Service, though I find the Army List still gives him as being of No. 1 Squadron, R.F.C. (Military Wing). He has taken his aviator's certificate, but he has had more experience of airships. Mr. Fletcher referred particularly to balloons in their application to military aviation. Leaving out some of his preliminary remarks, he said:—

"How many aeroplanists are aware of the interesting phenomenon mentioned by Mr. Brewer, that the wind direction varies at different altitudes? And of those who know that the wind's direction alters, how many have tried to make use of their knowledge?"

"On July 13th, 1912, a long-distance balloon race was held. The day was hot and thundery and the ground wind fickle. Pilot balloons sent up before the race drifted eastwards down the Thames. Those who watched the clouds saw the lower ones travelling south, but the mackerel sky above travelling north. Seven balloons went up from Hurlingham, of which four went south to Brighton at an average height of not more than 5,000 ft. The other three, choosing various altitudes, according to their ballast capacities, made Southampton, Bath, and Market Harborough respectively. The last named must have travelled at an average height of 12,000 ft. The balloon I was in described a very marked 'S,' the northerly inclined limb, from south of Godalming to Fleet, being at 10,000 ft.

"An aeroplane flying on that day from London to York,



LEARN TO FLY
at the
VICKERS FLYING SCHOOL
BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

VICKERS LIMITED,
Aviation Department, Vickers House,
Broadway, Westminster, S.W.



THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying is equipped not only to train the novice, but also to give extra practice to those who have already taken their certificates. For terms, etc., apply to the Beatty School of Flying, Hendon Aerodrome, London, N.W.

Tuition on Handley Page Monoplane & Wright Biplanes

£75.

Special terms to Naval and Military Officers.
(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

200 miles approximately, could, by flying at 10,000 ft. instead of 3,000, have saved about two hours on the journey. The two opposing currents were, I should say, about 20 m.p.h. at each level. The condition can be predicted by meteorologists, and it is of no small importance to aeroplanes to know and make use of it. Their endurance is limited to, say, five or six hours at war load. If, then, they can find favourable currents in all directions, they can save much petrol and oil, and add a considerable percentage (in the case we have considered about 50 per cent.) to the number of miles they can travel in the air. On the chance of effecting such a saving, it is worth while to climb to various heights and observe progress over the ground at those heights. This can now be done very easily by means of a little camera-obscure apparatus, in which the time taken for the image of a ground object to pass between two lines can be read off directly (as a function of the height) as speed over the ground.

"It might well be remarked here to those who object that too much is being demanded from the aeroplane pilot, that war is a scientific game, and must be waged scientifically. If by application of scientific methods we can increase the aeroplane's radius of action ever so little, then those methods are worth adopting, and the pilot must be trained accordingly."

Now here Mr. Fletcher has seized on a very pertinent point. Aviators know these things, but they do not use their knowledge. It would, as he points out, pay any cross-country flier to climb to various heights and try his wind-currents and their speeds before really starting on his journey. Every military machine should be fitted with an apparatus giving the relative ground speed, as he suggests. I take it that a sighting apparatus for bomb-dropping (such as that shown at Olympia by Mr. Holt Thomas) would serve this purpose as well, and it would therefore be a useful standard fitting. One may, however, suggest that scientific training would be simply time wasted on some of our best fliers. I fancy we shall arrive at a clear distinction between the navigator and the aviator. Just as an excellent navigating lieutenant on a ship may be a very bad seaman, so a fine flier may be unable to find his way by instruments; and we may ultimately evolve a separate section in the R.F.C. of navigator-observers.

Still, though Mr. Fletcher used a 1912 balloon race to illustrate an excellent argument, he has not yet proved the value of ballooning to-day. However, let us to his next point:-

"Sea breezes provide another important field of research for balloonists. On one occasion Major Maitland left London in his balloon in a flat calm. After hanging motionless for an hour or so he decided to go up higher, and went to 9,000 ft. through the clouds. There he remained 1½ hours out of sight of land. I have his permission to point the moral which follows. For he then heard the hoot of a steamer, and on coming down to investigate, found the Newhaven boat just arriving, as it were, at his feet. Moral: Do not remain in balloons for more than half an hour anywhere in England out of sight of the ground. This is made an order for military balloons, and should never be forgotten by anyone. A record descent was made, but at about 800 ft. a strong sea breeze was met, which carried him Londonwards at 25 m.p.h. Unfortunately, lack of ballast prevented him from saving railway fares to any appreciable extent, and he had to land. It would have been interesting to know where and why that breeze would have failed. Many countries in this world have nothing but sea and land breezes for six months in the year. Use could be made of them in much the same way that the barge and the steamer alike use tides to help them up and down the Thames."

Here, now, is a really good use for balloons. Though of little value in the training of aviators in this country, a real knowledge of sea and land breezes might be very useful to airship and aeroplane pilots on some of our foreign naval stations. Quite a great deal could be discovered with the help of a few of our comic naval airships, which could be allowed to drift as free balloons, and have just enough power to get home against the wind, if time is no object. Knowledge as to the seaward limit of such breezes would be of particularly high value to the Naval Air Service.

On yet another matter Mr. Fletcher makes a good point:-

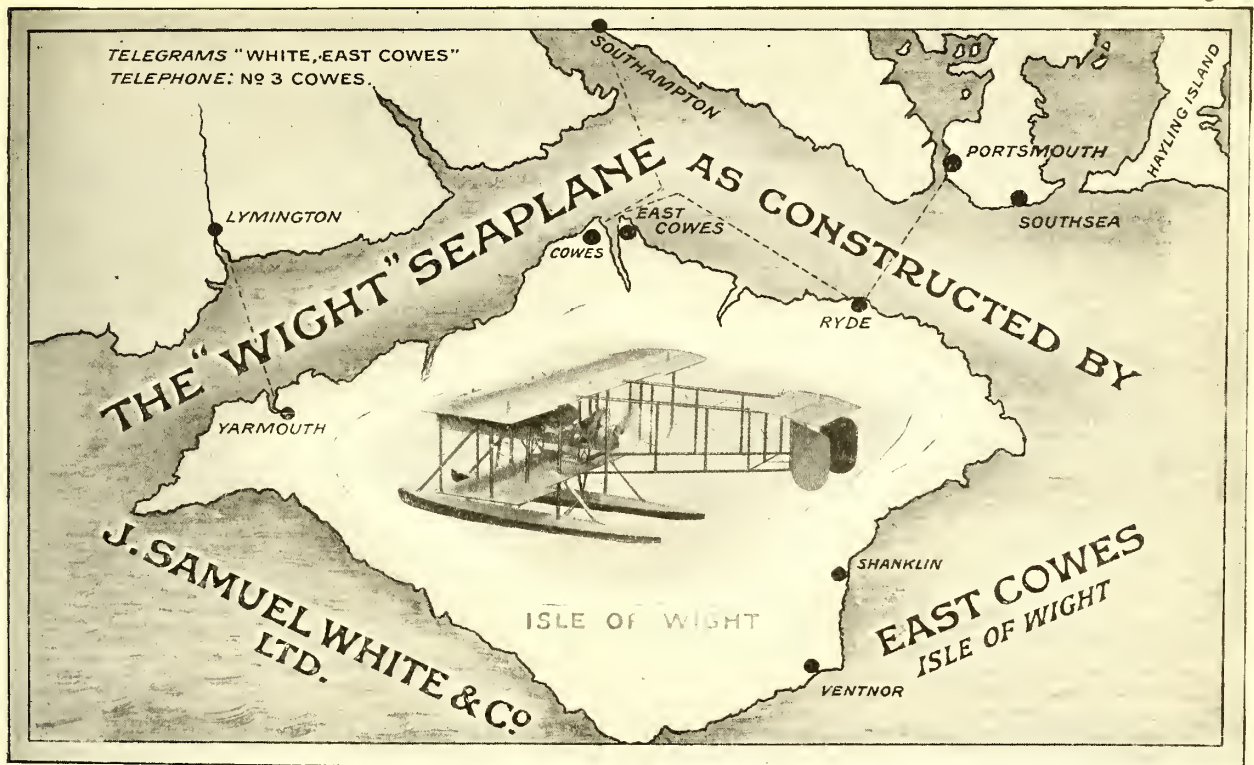
"I should like here to plead for some kind of organisation among balloonists in this country. A few individuals make weekly ascents from London. They store up for themselves a vast deal of experience and weather wisdom, but little of this gets any further. On the other hand, most German aeronautical papers give a page or two to ballooning. A synopsis of balloon ascents for the month chronicles always some two or three hundred ascents. Another page is given to the more interesting ascents; and altogether it is clear that an organisation exists to provide a common fund of experience from which all can draw. I would go further. I would suggest that the Meteorological Office amplify its wind-chart system, and publish daily information of the upper currents, so far as they can be ascertained or predicted, and that ultimately a probability chart be got out showing upper wind directions and forces for all systems of weather. These charts would be liable to daily revision by telegraph, but they would be a great guide to pilots flying high. It is a formidable task. But if more people ballooned from more centres, and if they sent in their reports to a central registry, and if they would assist in the pilot balloon ascents made under the auspices of the I.M.A., we should, in five years, have an invaluable fund of knowledge."

Apparently no really scientific ballooning is now done in this country. This paper, at any rate, would be only too pleased to publish any accounts of phenomena observed by balloonists which could be of any use to aerial navigation; but so far as one can gather, ballooning here, since the day of the Reverend Mr. Bacon, has degenerated into a particularly futile kind of "joy riding," where people sit in a basket and ejaculate, "Aren't the clouds lovely?" in the intervals when they are not eating. The stolidly diligent German uses the undisturbed calm for the prosecution of scientific research. That is why the Germans know more than we do in most things. If any scientific balloonists remain in this country, I beg that they will communicate with me.

Mr. Fletcher appears a trifle optimistic in his next passage:-

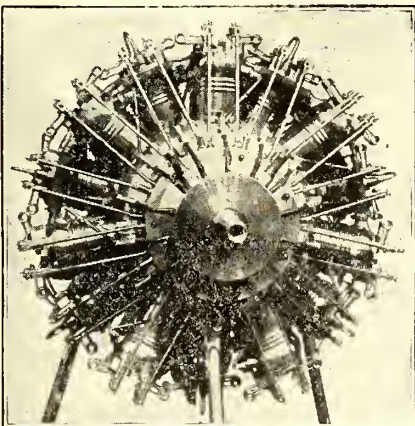
"Night flying, fog flying, flying above clouds, would be as safe and certain as navigation by dead reckoning is at sea to-day. In five years' time aeroplanes will be so safe, and so free from engine trouble, that to 'bet on one's engine running' will be to bet on a certainty. But we shall then find that navigation is the difficulty. There is, however, a little 'ever ready' drift indicator, very simple and very quick to use, and involving no calculation and no drawing. From it you can read at a glance what course to steer to make good a certain course, and where you will be at any moment. But first we must have our wind chart. The lack of these charts is at the present time the great gap in airship work. We still depend on seeing either ground, or sun, or stars. Dead reckoning, so often necessary, is not possible."

"At the present day I think more might be done than is done by the Meteorological Office. I am told on fairly reliable authority that the commander of a German naval airship which met with disaster at sea was warned by wireless from the nearest Meteorological Office of the approach of a bad disturbance, the nature of which was not quite known, and was advised not to send the ship out. The exigencies of the situation decided him to send out the ship, however, which four hours later ran into the line-squall which overwhelmed it. No such warning is possible in England except at stated hours. The Meteorological Office issues two reports only, early morning and late evening, so that the disturbance may actually arrive before the warning of it. I suggest that warnings of unusual disturbances be sent out at once to all aeronautical centres, so that aircraft may be stopped from going out in fine weather into certain bad weather. Further, the difficulty in plotting out wind forces and directions at any part of a cyclonic disturbance is that the Meteorological Office does not issue any definite statement of the movement of the centre of the system. Its speed and direction should always be given, and any change in either speed or direction should be sent



SALMSON AERO-ENGINES

SYSTEM CANTON - UNNE.



Phone No.:
7 Stroud.

Tele.
Address:
Humpidge,
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

*Who are the sole concessionaires for these engines for the
British Empire.*

London Office:—**87, Victoria Street, S.W.**
Phone No.: 7026 Victoria. Te'l. Address: "Aeroflight Vic London."

THE Monk Engineering Co., LTD.

High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES!

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

to aeronautical centres for distribution to aircraft carrying wireless. Again, as most systems work up from S.W., warnings of actual weather conditions sent from Plymouth or Bantry would give aircraft at least six hours' warning of the weather ahead. These warnings should be sent out every three hours."

Mr. Fletcher is quite right. Whether it is simply personal inertia, or lack of money, I know not, but the Meteorological Office is too slow for words. Some day its whole staff will be run over by a funeral. Even now nothing has been done as regards that excellent suggestion that there should be some sort of committee formed to correlate data from aviators and meteorologists and publish the combined results.

The Training of Pilots and Observers.

Turning to the subject of using balloons for the training of pilots and observers, Mr. Fletcher continued to score points for the use of balloons by The Army. Said he:—

"It produces quicker results in the elementary stages. A man will learn far more in three or four balloon ascents than he will in double that number of aeroplane flights. He will probably, too, reach greater heights in the balloon. The process is also attended with less actual risk and discomfort. Several ascents in aeroplanes are quite wasted, as the passenger is fully occupied in drinking in the new sensations. In the balloon, however, there are no new sensations except that of unusual calm. An instructor is always at the pupil's elbow to help him to learn, and there is no noise to prevent talking."

This, be it noted, is particularly true of training observers, though in training pilots I believe it is better to get a man used to the rush through the air and the vibration and racket of the engine before anything else. By the time he is accustomed to the row he is also used to leaving the ground some distance below him.

Here are some good points also for budding aviators:—

"How many pilots leave the aerodrome for the first time full of confidence? Never before have they had occasion to watch the country for possible landing-places. How many of these same pilots have landed in green corn or standing hay and smashed up simply because they could not distinguish between these features and pasture land from 3,000 ft. up? How many aeroplane pilots can recognise the useless pasture that slopes like the roof of a house? The remedy I suggest is to take each would-be cross-country pilot for two balloon runs before sending him off on his own. Point out that cattle or sheep are the only safe indications of pasture; that, failing cattle or sheep, one should look out for the scar in the gateway used by animals that is not present in standing hay or green corn fields. That when cattle or sheep are feeding with heads in the same direction it indicates either a slope or a strong ground wind; that streams or woods at the edges of fields often indicate steep slopes. These can be learnt very quickly. Five or six pounds spent on ballooning is worth far more for the experience gained, and is an excellent insurance for the preliminary risks of cross-country flying."

One might suggest that the best vehicle for this kind of training would be a small dirigible balloon, like the little Willows which was bought by the Navy, but seating three or four, and fitted with Mr. Willows' swivelling propellers. On such a machine a pupil could point out what he considered a

good landing-place, and the air-boat could go down and prove whether he was right or wrong, ascending again afterwards. The engine could be stopped while the instructor delivered a lecture, and the crew could be brought home under the machine's own power; all of which would, in the end, be much cheaper than smashing aeroplanes, and perhaps even cheaper than using free balloons. I confess that this point of view never struck me before, and I venture to suggest that two or three little dirigibles of this sort would be of the greatest value for the preliminary training of cross-country fliers at the Central Flying School and at Eastchurch.

Mr. Fletcher continued:—

"While on this subject I would like to suggest that a few balloons on the strength of the Staff College would provide all Staff officers with an invaluable grounding in aerial observations and would enable them to appreciate the situation from the flier's point of view far more sympathetically than they are likely to if they have never flown."

"Finally, I cannot leave the subject of training without pointing out that the balloon training is an essential part of every airship pilot's education. He must learn to read local conditions of temperature and wind. He must be skilful in the management of his gas and envelope. He must understand, inside-out, the theory of ballooning. The bigger the airship the more he must know. Changes of temperature, up and down currents, affect airships in a way in which no aeroplane is affected, and without a thorough appreciation of the situation the airship pilot would soon be utterly fogged and at a loss to understand the vagaries of his charge. If night-flying is to be a principal role of airships, the pilot must be trained first in night ballooning. When real flying, away from illuminated aerodromes, becomes a possibility for aeroplanes, some regulation should be adopted to make each pilot do at least two night balloon runs before he attempts to cross unknown country by night."

But why bother about free balloons which have to be carted home from their alighting-place? Surely here again the very small dirigibles would be better still. In fact, all Mr. Fletcher's arguments are in favour of small dirigibles.

After some further remarks on investigating the action of air-currents over towns and in mountainous regions, Mr. Fletcher suggested that the Society can assist by organising investigations, by interesting scientists and meteorologists in the various problems of the air, and perhaps even by finding money for the work. This last is, one fears, the greatest of all aerial problems. One can find plenty of money for Homes for Stray Guinea-Pigs, or for providing attachable pockets for South Sea Islanders, but there is no money to be had for the investigation of aeronautical problems. There is money in building aeroplanes to Government design, and capital can be found for that, whether the particular machines assist the progress of aviation or retard it, as they are doing at present. There is money to be had for all kinds of absurd propaganda. But there is none to help real progress. Unless some heaven-sent millionaire reveals himself who will spend a few thousands a year on pure experimental work, we must just worry through in our unmethodical English way and trust to our own stupidity to pull us through. We generally know where we want to get to, but we have the haziest idea of how to get there; nevertheless, we manage to arrive there somehow. Presumably, we shall do the same in aeronautics, unless we become a German province first.—C. G. G.

The British Anzani Engines.

Those who admire the design of the Anzani engine, and they are many, will be glad to hear that the British Anzani Engine Co., Ltd., are now having their engines built by the Coventry Ordnance Works, Ltd., the excellence of whose workmanship is a guarantee that the maximum efficiency will be obtained from the design.

The first of the British-built Anzanis is now at Farnborough ready for the Naval and Military Engine Tests. This engine is a 10-cylinder, 125 h.p., with a bore and stroke of 115 by 155 mm. On Thursday of last week the engine did a non-stop run of 11 hours without experiencing any trouble, running at a greater number of revolutions per minute and de-

veloping more power than any of the engines of the same dimensions that have been produced in France.

One who has seen the engine says that the workmanship throughout is remarkably good, otherwise the engine is identical with those built in France, and in all the preliminary tests it ran sweetly and kept remarkably cool.

M. Anzani, in company with the directors of the British Anzani Co., paid a visit to the Coventry Ordnance Works on Wednesday of last week and was agreeably surprised at the magnitude of the firm which is making his engines in this country. One gathers that he expressed great satisfaction with the efficient and up-to-date equipment of the firm, and considers the Competition engine should give excellent results.

How Money is Spent.

BY W. E. de B. WHITTAKER.

As each year passes, whether Home Rule or Old Age Pensions disturb the political atmosphere or not, whether a European war threatens to make life truly exciting or not, the Government has to make provision for the maintenance of the public services. Much of this provision may be laid down at the beginning of the year with certainty, but much again can only be provided for by guesswork, or on an estimate which is little better than guesswork. Thus it happens that when the financial year draws to a close it is often found that the provision for one department has proved more than sufficient, whilst in another heavy debt has been incurred. Such debts are met when possible, and with the consent of the Lords Commissioners of the Treasury, by the use of such money as is left over by other departments. These annexations of unspent money are known as "appropriations." Should there be no such money available then the Parliamentary head of the department must approach the House of Commons for such further provision as is necessary in the form of a Supplementary Estimate.

The diversion of various sums of money to other uses by consent is shown in an Appropriation Account published more than a year after the end of the financial year. This delay is partly caused by the immense complication of Government Accounts—a complication which is often sneered at by the Man in the Street, who, one presumes, is unable to realise that in elaboration of precautions lies the only safety for the public—and partly by a laudable desire to allow people to forget things. Accounts are never pleasant at the best of times, and those of public departments, lacking the excitement of private accounts, are even duller than any others.

Towards the end of February the Appropriation Account for 1912-13 was published as a white paper. As it contains a certain amount of information of importance as to the first year of the existence of the R.F.C., I propose to deal with it in this article.

The Army Estimates of 1912 contained a total provision of £308,000 for Aeronautics, an increase of £177,000 on the previous year. Most of this increase was absorbed in the purchase of land and rightfully ought not to have been included in the particular total. For the purchase of aeroplanes and the maintenance of the Royal Aircraft Factory £161,000 was set aside. No definite information was given as to the number of aeroplanes it was proposed to purchase.

It is pathetic to notice under Paper 9, "Particulars of payments under Vote 9, Subhead H, Rewards to Inventors, 1912-13," a sum of £4,000 awarded to S. F. Cody being the balance of a sum of £5,000 awarded to him for the improvements in man-lifting kites. He had not long in which to enjoy any of his long-deferred rewards, if even they were not all pledged long before.

The upkeep of the perfectly useless would be amusing if it were so entirely useless. There appears under Paper 10 of the Account an entry of £1,502 4s. 8d. for alterations and addi-

tions to the dirigible shed at Wormwood Scrubs. True, this sum was a carry-over from the previous year, but even so, why spend it? The shed is utterly useless for any but a toy balloon, and there does not seem to be any intention to make any use of it again. Private offers have been made for the use of the shed, and the Admiralty also had intentions upon it, but one presumes that the terms were too high or too exacting.

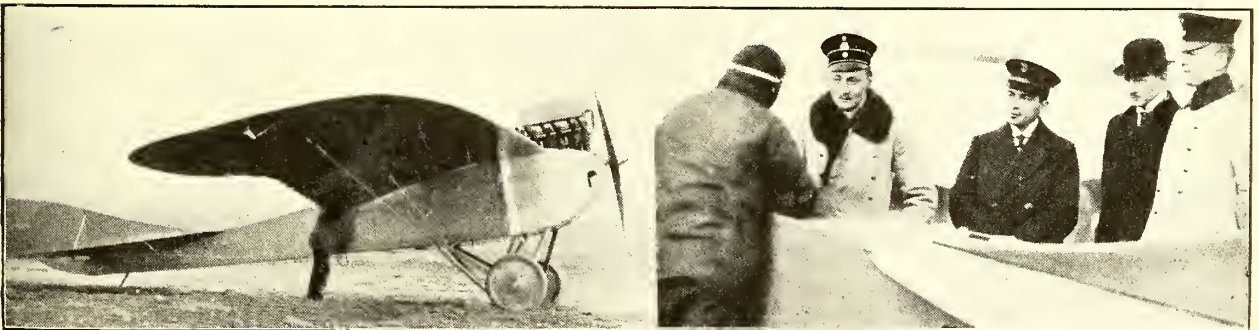
The vote of £24,000 for buildings was greatly exceeded during the year. Extensions were made at the Royal Aircraft Factory to the Factory itself and to the "Small" shed for dirigibles, involving altogether an increased expenditure of £5,058 before the end of the financial year.

On December 23rd, 1912, a letter was written by Sir E. W. D. Ward to the Treasury requesting permission to open a new Part I item under Vote 10, allotting £62,000 for the erection of accommodation at Aldershot for the R.F.C. Military Wing. The request was naturally granted, and since that date the sum has been further increased. Similarly, a further £60,000 was obtained for new works on Salisbury Plain. In the buildings then begun and now almost completed, two squadrons of the R.F.C. are stationed.

The most important and interesting account in the paper is that of the Royal Aircraft Factory. In the Report of the Comptroller and Auditor General, published at the end of the Account, he says: "There is also a considerable increase under the item for stores issued to the Army, largely due to the purchase of aeroplanes and other aviation stores. These are inspected at the Factory and issued to the Army at the purchase price, i.e., without charge for inspection."

The total sum spent during the year (1912-13) at the Royal Aircraft Factory on construction, maintenance and the purchase of material was in the neighbourhood of £150,000.

The production statement has most interest for those connected with aviation. In the Auditor-General's report, he says: "The production Statement does not show any aeroplanes as having been built for the Army during the year. It was, however, noticed that in certain cases work orders for construction of aeroplanes had been subsequently included in the accounts under the heading of 'reconstruction.' I have asked for explanation on this point, but owing to the somewhat late date at which the account was furnished to me sufficient time has not elapsed for a reply." This is the curious state of affairs brought out some weeks ago in Parliament when it was stated in all seriousness that the aeroplane on which two officers recently met their death was not a new machine but a reconstruction of one of a totally different type in which neither the design, material nor engine is the same. A slow and cumbersome box-kite of no particular virtue except age is converted by a move of the magician's wand and a free expenditure of the people's money into a swift tractor biplane "superior," we are told, "to any in the world." The engine which, in the first case was a water-cooled eight-cylinder of



Herr Linnekogel's Altitude Record Rumpler Taube. On the right Herr Linnekogel is seen discussing his flight with Prince Siegmund of Prussia, himself a pilot and constructor.

peculiarly unreliable habits, became in the course of the reconstruction air-cooled and reliable. It is sufficient, however, that the Auditor-General has observed this circumstance.

Under the heading of "Production" appears a sum of £5,880 17s. 6d. for reconstructions, £7,710 5s. 9d. for "Repairs and Maintenance," and £3,538 1s. 6d. for "Engines—Testing and Maintenance." Enough surely, all of it, for what was done. A little later it appears in the same account that two of these aeroplanes, these machines called "reconstructions," when supplied to the Army were delivered to the Navy. They were charged to the Admiralty at £632 12s. 0d. apiece. If this price includes an engine, which presumably it did, then it is too low, if not it is far too high. The R.A.F. does not run in competition with the manufacturers, we are to believe, yet its prices would appear to be such that no manufacturers could or dare impose. The Navy has bought the machines and Naval officers have flown them, yet, admirable "air" craft though they be, the Navy does not like them. They do not think them strong enough, one would gather.

Another item in the same Statement is of equal interest. Some time back the R.A.F., accustomed to designing the best things in all the world, produced a portable tent which was to outlive all similar articles then in use. These tents were in fact produced, and were successful. They were no better than those supplied by a well-known French firm at a very low price. However, one believed that the Army was not losing by the work of the R.A.F. It now appears that twenty-three tents were delivered to the Army and the price of each of these was £300 12s. 2½d. Yet the French firm whose products are at least as good would supply individual tents for less than half the price charged by the Government Factory and then would hope to make a profit. The total cost of these tents was £6,914 0s. 3d., yet during the fraction of a year remaining of the financial period at issue they cost £838 14s. 7d. It would seem that later in the same year they supplied two of these tents "later pattern," therefore better, to the Navy at

£288 9s. 9½d. each, or over £12 less in each case. It is not likely that the entire 23 were supplied at once or that the Naval sheds were constructed at a very much later date, yet the Army is not allowed to participate in the saving. If, in the case of a civil manufacturer, a number of any one article were to be ordered, a reduction would be made in the price. The Army, purchasing from a Government Department, gains nothing whether they order one or fifty.

"Experiments" cost the country £11,034 18s. 2d. during the year; whilst "Inspection," a matter of very urgent importance, was carried out at an expenditure of £887 6s. 0d.

While so little was expended on aviation proper by the Factory no less than £8,048 10s. 0d. went on "repairs and maintenance" of dirigible balloons, and £1,128 16s. 3d. on "testing and maintenance" of engines. When one thinks of the balloons and the engines concerned it would seem that ordinary public places of amusement are much over-rated at the price. The nets and bridles of ordinary free balloons cost £1,094 12s. 10d. in the course of the year, whilst one new balloon was purchased at a price of £307 16s. 10d.

Each of the mooring masts, of which one has heard so much and seen so little (they were invented by the Navy and claimed as the product of the R.A.F.), cost the country £268 11s. 3½d., and there were four of them delivered during the year. Repairs to these four amounted to £113 17s. 4d.

A little work was done for outside departments such as the Science Museum, Kensington, for which work to the amount of £2 8s. 0d. was carried. Kites, now almost extinct, cost over £220 in the course of the financial year.

The lack of any real forethought in the design of a dirigible shed cost the country £1,044 12s. 9d. for a wind-screen to be placed before "A" shed at Farnborough.

There are many other similar points of interest in the Appropriation Accounts which would be of interest to those concerned in aviation, and it would be well if many of these bought the papers quoted.

The Wight Seaplane's Success.

The most recent tests of the Wight seaplane show it to be even more successful than its first tests promised. On the 14th it was brought out and made half a dozen flights in the morning and three in the afternoon, piloted by Mr. Gordon England. The weather was fine, with bright sun, a rough sea, and a wind between 18 and 25 m.p.h. The various motor-boat people said it was quite the roughest day an aeroplane had been out in. The 200-h.p. Salmson engine ran like a clock and gave no trouble all day, never once failing to start promptly on the compressed-air starter.

The climbing speed for the first 1,000 feet with full load for Admiralty test was 2 mins. 20 secs. The first 500 feet were done under the minute, but after that height Mr. England flattened out the climbing angle somewhat, as the wind was very strong higher up, and he was not taking any chances. The average speed during the climb was 63 m.p.h.

The highest speed when flying flat was 78 m.p.h., registered by the Ogilvie speed indicator, which, one gathers, was probably under-estimating the speed owing to its position on the machine. Mr. England says that the Wight has to be handled carefully at this speed, as the angle of attack is minus 1 degree, and the machine is inclined to "hunt," but at 72 m.p.h. she handles quite easily. The low speed is about 40 m.p.h., and the machine flies quite comfortably at 55 m.p.h. with the engine only giving 800 r.p.m.

The quickness of the machine in getting off the water is extraordinary, one of the shore hands remarking that it appeared to have become a balloon. A number of getting-off tests were tried, and it never took more than 7 seconds from the time the motor was opened out till the machine left the water. Once, when starting from the shed, she left the water in 30 yards. Most of the testing was done in a 4 ft. sea, and on one occasion Mr. Howard Wright counted the waves passed over before leaving the water and found that the floats left the crest of the third wave and did not touch the fourth.

The load carried during these tests was pilot, passenger, 110 lbs. of wireless apparatus, 60 gallons of petrol and 4 gallons of oil—a total useful load of 932 lbs.

The New International Michelin Cup Rules.

The complete rules for the new International Michelin Cup Competition for 1914 have just been published. The prize is valued at £800 and will be given to the pilot who before January 1st, 1915, shall have flown in the fastest time over a fixed itinerary of about 3,000 kms. This is, of course, practically an aerial circuit of France, and the prize works out at something less than 10s. per mile.

The competitors can start from any of the stations in the following list, but for convenience the distances are given as starting from Versailles, which include any of the aerodromes of Buc, Chateaufort, Villacoublay and Saint-Cyr:—

Versailles 0 km., Péronne 160, Reims 120, Saint-Dizier 110, Gray 130, Joigny 180, Beaune 160, Vienne 180, Nîmes 190, Pau 380, Saint-André-de-Cubzac 200, Romorantin 310, Angers 190, Evreux 210, Calais 230, Versailles 250—Total 3,000 kms.

It is interesting to note that 12 of the 14 landing stations have been established by national subscription, Angers and Calais by local committees, and the rest by the National Committee.

No change in machines is permitted in the course of the flight, and towing is only permitted at a walking speed. Pilots can fly by day or by night.

The competition is international, and a German itinerary of 3,000 kms. has already been marked out as follows:—Johannisthal, Dantzig, Schneidemühl, Breslau, Dresden, Gotha, Mayence, Stuttgart, Mulhouse, Darmstadt, Gelsenkirchen, Hanover, Hamburg, Warnemünde, and Johannisthal.

A Correction.

Owing to a printer's error it was made to appear in last week's issue that Mr. Busted's flight from Lark Hill, on Salisbury Plain, to Brooklands, approximately 60 miles, in 27 minutes, was done on a Blériot Scout. Those who are in touch with aviation will no doubt have observed at once from the name of the pilot, and from the use of the title "Scout," that the machine was in reality the Bristol which was illustrated in this paper some weeks ago, but it is just as well to restate the fact for the benefit of the rapidly growing number of new readers of THE AEROPLANE.

NOTICE.

THE
W. H. EWEN AVIATION CO., LTD.

will in future be known as

THE BRITISH CAUDRON
COMPANY, LTD.

And will construct:—

British built **CAUDRON** monoplanes, biplanes, hydro-aeroplanes (combined wheels and floats.)

The Flying School, which has been so successful, will be carried on under the new name at the old address, The London Aerodrome, Hendon.

Telephone : 50 Kingsbury.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS

for the building of

HENRY & MAURICE FARMAN

Aeroplanes
AND
Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.

LOOPING the LOOP
on the

AVRO

On the regular 50 h.p. Avro, without any extra bracing, Mr. Laurence Hall, of the Hall Aviation Co., Hendon, looped the loop. He was not strapped into the machine other than the usual **Avro Safety Belt.**

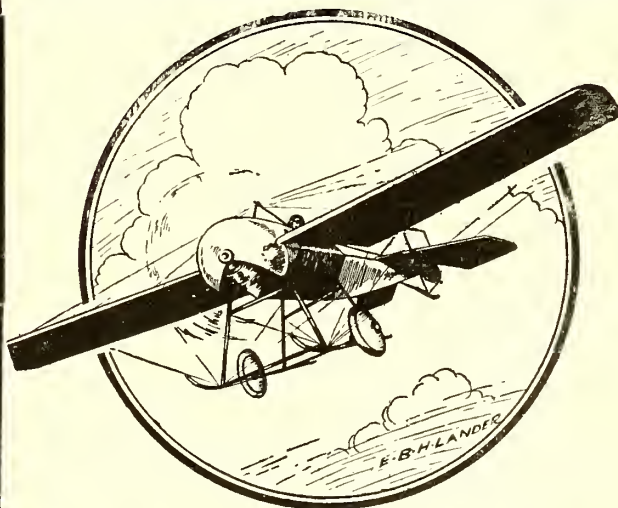
THE AVRO for STRENGTH
for simple control, efficiency and general utility.

NOTHING BETTER.

A. V. ROE & CO., LTD.
Clifton Street, Miles Platting,
MANCHESTER.

Telegrams :
"Triplane, Manchester."

Telephone :
337 Failsworth.



"BLACKBURN"

Monoplanes, Biplanes, and Hydro-Biplanes,
Propellers and Accessories.

THE BLACKBURN AEROPLANE COMPANY,
BALM ROAD, LEEDS.

Telegrams—"Propellers, Leeds." Phone—2822 Central.
London Offices : H. A. TURRILL, 104, High Holborn, London.
Telephone—4950 and 1791 Holborn.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," April 14th:—

War Office, Regular Forces.—Royal Flying Corps.—Capt. Andrew G. Board, the South Wales Borderers, from a flying office to be a flight commander. Dated March 1st, 1914.

NAVAL.

Admiralty appointments, April 18th:—

Royal Naval Reserve.—The following Sub-Lieutenants have been promoted to rank of Lieutenant, with seniority of April 17th:—R. L. G. Marix and H. A. Littleton.

Lieuts. Marix and Littleton were officers of the R.N.V.R., appointed to R.N.R. after a course at the Central Flying School. Both are excellent pilots, and Lieut. Marix flew a Caudron with marked ability during the military manoeuvres in September last.

Hicks—Kay.—April 2nd, at Whittington Church, near Worcester, by the Very Revd. the Dean, assisted by the Revd. C. H. Gough and the Revd. F. L. Whatley, Lieut. Wm. C. Hicks, R.N., elder son of the late Capt. C. P. G. Hicks, R.N., to Nellie, eldest daughter of Mr. and Mrs. Kilbourne Kay, of Heron Lodge, Worcester.

Lieut. W. C. Hicks, R.N., was appointed a flying officer and for Naval Airship No. 3 on June 30th, 1913. He took his aviator's certificate (No. 494) on May 27th, 1913, on a Caudron biplane at Hendon.

The staff of the Central Air Office of the Naval Air Service, now located at Sheerness Dockyard, consists of Commander F. R. Scarlet, R.N., Inspecting Captain of Aircraft, Capt. P. Owen, Royal Marines, Fleet-Paymaster F. Lenn, R.N., and Assistant-Paymasters A. A. E. Robinson and L. D. McKean, R.N. This office deals with the matériel of the aeroplane section of the Naval Air Service, and must not be confused with the Air Department at the Admiralty, which controls the whole Air Service, airships and aeroplanes, personnel and matériel included.

The second of the Wight seaplanes, 200-h.p. Salmson, built by J. Samuel White and Co. for the Navy, passed its Admiralty tests at Calshot on Friday last. Its performances were almost identical with those of the similar machine, reported elsewhere. It climbed to 3,000 ft. in $7\frac{1}{2}$ mins. with a useful load of approximately 950 lbs. Mr. Gordon England, the pilot, afterwards gave instruction to Lieut. Creswell, R.M.L.I., who, one gathers, will fly this machine.

At Eastchurch on Monday there was much flying, and quite a number of spectators saw the Naval Air Service at work. A Caudron (50-h.p. Gnome), Shorts Nos. 3 (50-h.p. Gnome), 64 and 65 (80-h.p. Gnome), Sopwith No. 33 (80-h.p. Gnome), H. Farman No. 31 (70-h.p. Gnome), and Deperdussin No. 36 (70-h.p. Anzani) being out. Lieut. Davies, R.N., on one of the Shorts, made a trip to Kingsnorth and back, and Lieut. Marix, R.N.R., with Lieut. Fowler, R.N.R., on the Sopwith, went to Brooklands and back.

On Tuesday the weather was again excellent, and Shorts Nos. 3 and 68, Sopwiths Nos. 27 and 104, and Deperdussin No. 36 were out.

On Wednesday, Sopwith No. 27 paid a visit to Isle of Grain, and Lieut. Davis, R.N., with Lieut. Ireland, R.N., were making wireless tests on Short No. 66 (50-h.p. Gnome). On Thursday, Short No. 65, H. Farman No. 31, Avro No. 16 (100-h.p. Gnome), Deperdussin No. 36, were out; and on Friday, Shorts Nos. 65 (80-h.p. Gnome) and 10 (140-h.p. Gnome), Deperdussin No. 36, Sopwith No. 27 flew, the last named, piloted by Lieut. Marix, R.N.R., visiting Shoreham. On Saturday, Sopwith No. 27 returned, and H. Farman No. 31, Shorts Nos. 10 and 65, B.E. No. 50, Avro No. 16 were in use.

Dundee naval air base is regaining something of its old activity. The manoeuvres at Leven have now finished and preparations are being made for the return of the machines to Carolina Port.

On Thursday, Major Gordon flew the Borel, No. 86, from Leven to the Tay. Leaving the Forth about a quarter to seven, he made a good flight round the coastline, arriving above Dundee half an hour later. Owing to fog, he was com-

pelled to fly at a low altitude, and before landing he flew up to the Tay Bridge, above which he turned. About 9 o'clock the machine was brought ashore and housed in a Bessonneau canvas hangar. Major Gordon also inspected the slipway which is under construction, but which was badly damaged by the waves during the gales of last week. Stronger and larger piles are now being put in to replace the ones which were washed away, and a much stronger slipway is now to be built than was originally intended.

Major Gordon, R.M.L.I., and six men still remain at Leven, and some little flying continues there. On Wednesday morning (April 15th), Major Gordon flew Borel 86 back to Dundee. On Thursday, with one of his men as passenger, Major Gordon made a half-hour flight on Short 42, and on Saturday morning four flights, apparently on the same machine.

One gathers that the temporary sheds are to be removed, and the station vacated within the next fortnight.

One gathers from the French Press that Major Gerrard, R.M.L.I., now Senior Instructor at the Central Flying School, has been spending a holiday in France, and visited the Farman School at Buc, where, according to the papers, he "evolved above the environs, and terminated his promenade by a superb vol-plané."

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending April 11th, 1914:—

No. 2 Squadron (Montrose).—In spite of the uniformly bad weather throughout the week, the pilots of the squadron covered 2,814 miles in all. Practice in reconnaissance work was continued.

No. 3 Squadron (Netheravon).—A considerable amount of reconnaissance work was carried out, although the weather was unfavourable during most of the week. Experiments in photography were continued successfully.

No. 4 Squadron (Netheravon).—The officer and N.C.O. pilots of the squadron made numerous flights during the week and some experimental work was carried out.

No. 5 Squadron (Farnborough).—The weather during the week was most unfavourable, but cross-country reconnaissances were carried out on Wednesday.

No. 6 Squadron (Farnborough).—The weather has been unsuitable for much flying, but cross-country reconnaissances were carried out on Wednesday.

Aircraft Park (Farnborough).—Repair work on aircraft and mechanical transport was carried out in the workshops, and the technical training of recruits was continued.

War Office, April 14th, 1914.

It will be noticed that the "Aircraft Park," which has its own workshops, now replaces the "Flying Depot."

Are B.E. machines as they now exist to be condemned at last? Strange rumours have been afloat throughout the R.F.C. for some time that new aileron wings are being constructed to be fitted instead of the present warping wings. Another outbreak of this rumour was occasioned on Monday morning when orders were again issued that B.E. machines are not to be flown until further notice.

Capt. A. G. Board, now a Flight Commander in No. 6 Squadron, was appointed to the Royal Flying Corps on April 18th, 1913. He holds one of the earliest certificates among military aviators in this country, having taken his brevet (No. 36) at the Blériot School at Hendon on November 29th, 1910. Soon after passing the tests his regiment was ordered to South Africa, and he was unable to join the Flying Corps till his return last year. For a considerable time last year he was acting as instructor at the Central Flying School.

For the first time the Indian Flying Corps is represented in the Army List this month, under the heading "Indian Central Flying School, Sitapur." The Commandant is Capt. S. D. Massy, 29th Punjabis. The instructors are Capt. C. W. Hoare, 39th Horse; Lieut. C. L. N. Newall, 2nd Gurkha Rifles; and Lieut. H. L. Reilly, 82nd Punjabis.

It has now become known that Mr. Geoffrey de Havilland, Inspector of Aeroplanes in the Aeronautical Inspection De-

partment, has resigned his post in order to take up a responsible position with the Aircraft Manufacturing Company. One regrets his resignation on account of the loss to his Majesty's Service, but one gathers that his place will be taken by Mr. G. B. Cockburn, whose appointment to this department was notified recently, so one may be reassured as to the efficiency of this particular office. On the other hand, Mr. de Havilland's ability as a designer will undoubtedly have greater scope under Mr. Holt Thomas, so that ultimately the Royal Flying Corps may benefit even more by his good work.

According to the "Times," the Army Council has definitely decided to station a squadron of the Royal Flying Corps at Portsmouth, and No. 3 Squadron, now at Netheravon, has been selected. Fort Grange is to be converted into barracks. It is expected that the Royal Flying Corps will take over their new quarters immediately after the summer training camp which is to be held on Salisbury Plain in June.

Squadron 2 at Montrose resumed work after their Easter leave on Tuesday, but as a gale was raging no flying could be done. Wednesday's flights were somewhat extended. Capt. Todd (B.E. 233), Lieut. Corballis (B.E. 232), and Lieut. Rodwell (B.E. 229) visited Edinburgh, and Capt. Todd (B.E. 233), Capt. Waldron (B.E. 225), and Lieut. Empson (B.E. 228) went to Fraserburgh, Capt. Waldron being accompanied by Lieut. Mayne, K.O.S.B. Local flights were made by Major Burke (B.E. 236) and Capt. Dawes (Maurice Farman 214), and Lieut. Martyn flew to Aberdeen on B.E. 235. Most of the pilots were accompanied by air-mechanics, and flying was continued from 9 in the morning till dusk.

Next day the same wide areas were covered, the pilots being Capt. Waldron (B.E. 225), Capt. Todd (B.E. 233), Capt. Dawes (M.F. 214), Lieut. Corballis (B.E. 232), Lieut. Rodwell (B.E. 327). Friday was very hazy, and although Lieut. Corballis (B.E. 327) made a flight of about an hour, flying was stopped for the day. Saturday's flights were mostly to Berwick, Capt. Todd (B.E. 233), Lieut. Empson (B.E. 228), Lieut. Martyn (B.E. 235), Lieut. Corballis (B.E. 232), all making this flight. Lieut. Harvey also flew Maurice Farman 214. Major Burke (B.E. 236) and Lieut. Rodwell (B.E. 229) made several local flights.

The squadron is preparing in good time for their concentration camp on Salisbury Plain (June and July), and expects to leave about the end of May.

Air-mechanic Stephenson, of No. 2 Squadron, was returning after Easter leave and was one of the victims in the railway smash at Burntisland. He was tossed about inside the overturned carriage and was badly cut on the head and arms, his ankle being also sprained. He now realises that aviation is not the only dangerous mode of travel.

SOUTH AFRICA.

The aviation school at Kimberley, started by Mr. Compton Paterson, has been closed, but the Union Government has selected five officers of the South African forces to be trained

as aviators. These officers will arrive in England on May 15th to report for duty at the Central Flying School on the 19th. Their training will be prolonged beyond the ordinary C.F.S. course, probably extending to twelve months in all, so that it will be at least fifteen months before a South African flying corps comes into being.

FRANCE.

The "Journal Officiel" publishes the conditions under which young men called to the colours by conscription in October, 1914, who by reason of their education, aptitude, or knowledge acquired in the civil aeronautical schools are particularly suited to the service, may be appointed to the aviation or aerostation troops instead of to a regiment of the line. They may be appointed to the aviation troops on the recommendation of commandants of recruiting offices to whom they may address their requests, adequately justified by possessing a pupil's diploma of the superior aeronautical school, or a certificate from a commandant of an aviation group, witnessing that they have passed their military brevet. There may be appointed to the aerostation or aviation troops after having passed a set examination: (1) young men who are members of a recognised aeronautical society, or who have passed a course in an aerostation or aviation school; (2) young men who, without being members of a society, desire to submit to the tests provided for class (1). Candidates are also permitted to state in which garrison they prefer to serve. Further, a certain proportion of young men will be appointed to the air corps who belong to professions required in the aeronautical troops, provided they can show sufficient professional ability on examination.

Writing in the "Armée et Marine," a French writer gives a thrilling description of the intended use of the German air fleet against France. According to Colonel X, on the arrival of a moment of political tension between the two countries and while France still expects a pacific solution of the troubles, Germany is resolved to make a grand aerial raid, divided into three sections, to wit:—

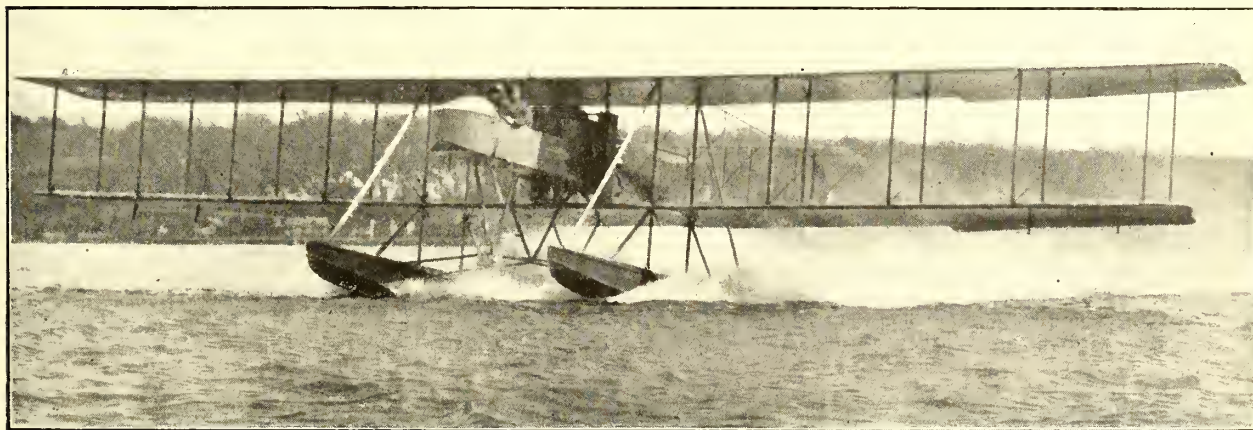
(1) To attempt the destruction by aeroplanes armed with bombs of bridges over the Meuse and the Moselle, and of important railway depots, etc., on or near the frontier, to be followed immediately by

(2) The bombardment from above by airships of Nancy, Verdun and Toul, and

(3) To send a dirigible charged with bombs and incendiary appliances to do as much damage as possible to Paris.

The first only of these three branches of the raid can be considered as a serious military operation, but the moral effect of such a raid is expected to be considerable and likely seriously to embarrass the French Government, thereby affording the German Army an opportunity of striking a decisive blow against France during the ensuing confusion.

The writer suggests that the great majority of the attacking



The Wight seaplane, 200-h.p. Salmson, getting off at Cowes, piloted by Mr. Gordon England, with Mr. Howard Wright as passenger. Her speed was 78 m.p.h., and she climbed 500 ft. in 1 min., 1,000 ft. in 2 mins. 20 secs.

air fleet would be destroyed by the French aerial forces, but not till after their work was completed, and that Germany would willingly make this sacrifice for the advantage thereby gained. All of which bears a strong family resemblance to the alleged Government "Pogrom" for Ulster, and probably is about as near the truth.

The machine of the unhappy Capt. Hervé, murdered by Moors, has been found undamaged 20 kms. to the south of where his body was discovered.

On April 10th, before a military commission headed by Capt. Destouches, M. Molla passed six R.E.P. monoplanes (80-h.p. Le Rhones) through their tests for the French army. With full load and fuel for four hours, they reached 1,000 metres in 8 mins. 15 secs.

On April 17th, Capt. Fauré and a passenger flew from France into Germany, landing at Rezonville, but started again with the help of the Francophile peasantry before he was arrested by the German authorities. The usual minor international complication is taking place.

On April 6th, Escadrille No. D.6, composed of seven two-seater Deperdussins, left Reims bound for Poitiers to take part in fire-control exercises. The pilots were Capt. Dégorge (commandant), Lieuts. Devienne, Mortureux, Zapeli, Adjudant Garnier, and Sergts. Hostein and Matheron. Each pilot was accompanied by his mechanic. A stop was arranged at Romorantin, and a motor convoy preceded the escadrille to that place. All arrived at Romorantin without incident, and six of the machines reached Chauvinerie during the afternoon. Lieut. Mortureux was delayed and arrived next day.

GERMANY.

On April 16th the "Hansa" left Potsdam by night and flew to Hamburg to replace the "Sachsen," which is to be used by the navy on manœuvres.

Lieut. Kluge, who was injured in a balloon accident at Bitterfeld, has succumbed.

The new military dirigible Z. 8 left Friedrichshafen at 6 a.m. on April 16th and flew to Baden, landing at 10 a.m.

The municipal council of Hof have decided to establish a small air station at their city.

Particulars are to hand of the further organisation of the military aerodrome at Doeberitz, near Berlin. Three large sheds have recently been constructed, one of which can hold 50 machines. The second, which has a length of 220 ft., contains the machines of the two companies of aviators who are permanently quartered at Doeberitz. In the third of the sheds, which is still larger, are stored the aeroplanes which are held in reserve for mobilisation purposes and the motor-wagons for their transport.

A correspondent states that these machines are taken out of the shed every day or so, their motors are run, and the whole of the machines themselves are subjected to a searching inspection in order that everything may be ready for instant service. Special quarters are provided for a military guard at the end of the shed.

One of the companies stationed at this aerodrome flies monoplanes exclusively, and the other company flies biplanes only. Barracks are under construction, as the present quarters are not adequate for the accommodation of the aviators.

Lieut. Suren flew a 100-h.p. Gotha Dove for 12 hrs. 14 mins. last week, journeying from Johannisthal to Gotha via Hanover and Osnabrueck.—B.

RUSSIA.

The "Ilia Mourametz," the Sikorsky biplane, has acquitted herself well with the two 200-h.p. Salmsons by which she is now driven, having made about thirty flights, totalling 70 hours.

Still later advices state that of the 10 big Sikorskys on order 6 will have each 2 Salmson engines each of 200 h.p. and 2 of 130 h.p. each, i.e., 4 engines totalling 660 h.p. on each machine. The mere school machines will have each 4 Argus engines of 100 h.p. each, or 400 h.p. per machine.

ITALY.

The following figures respecting the Italian airships will doubtless be of interest. The "City of Milan" (Forlanini), recently destroyed, had the following characteristics: 12,000 c.m., two Isotta-Fraschini motors of 85 h.p., speed 72 k.p.h., 2,000 m. altitude capacity, 3,000 kgs. useful load, 72 m. long, 18 m. diameter.

Those still existing are as follows:—

Cruisers (1) "City of Ferrara," Italian military build, 12,000 cub. metres, 500-h.p., 70 kms. per hr., 3,800 kgs. useful load, 24 hrs' fuel capacity, stationed at Ferrara. (2) "City of Venice" (Parseval), 9,600 cub. metres, 360-h.p., 59 kms. per hr., 2,800 kgs. useful load, 20 hrs' fuel capacity, stationed at Venice. (3) "G1," Italian military build, 40,000 cub. metres, 100 kms. per hr. (under construction). (4) "V1," semi-rigid, designed by Sig. Verdizio, 14,650 cub. metres, twelve compartments, 400-h.p., 90 kms. per hr., 24 hrs' fuel capacity (under construction). (5) Unnamed Parseval, 18,000 cub. metres, 600-h.p., 75 kms. per hr. (under construction).

Scouts (P1) to (P5), Italian military build, 4,200 to 4,700 cub. metres, 100 to 160-h.p., 52-60 kms. per hr., 1,000 to 1,500 kgs. useful load, 10 to 20 hours' fuel capacity, stationed variously at Bracciano, Campalto, Boscomantico, Tripoli, Leros. "P" stands for "piccolo," i.e., small size.

The Italian Navy also has a dirigible similar to the "City of Ferrara," known as "M1," and another of this type is under construction. It is interesting to note that many of the Italian dirigible sheds have been built by Muller, of Berlin. Readers of THE AEROPLANE will remember that even the smallest of these Italian airships have done exceedingly good work, and so far as her dirigibles are concerned, Italy has done more work than any nation with the exception of Germany.—G.

Combined manœuvres in which seaplanes were set to find the whereabouts of submarines are said to have taken place outside Venice recently. We have not yet been told what happened.

Anent the cause of the explosion of the Forlanini, a suggestion has been made that it is another case of a dirigible becoming electrified and discharging to the earth. It is not considered likely that a single member of the crowd which surrounded the vessel would have allowed a neighbour to smoke. Equally unlikely, too, is the supposed spark from a chimney. Of the three people seriously injured one has succumbed. Considering the number of people around and that some were actually in the cabins and the corridor it seems miraculous that so little mortality ensued.

Major Piazza having been authorised to loop the loop, and having stated that it would seem advisable for looping to be made one of the tests when the Government accepts machines for its pilots, presumably looping by the military aviators will be sanctioned.

Major Douhet has been promoted to Lieutenant-Colonel.

The more weighty journals continue to find matter for editorials in the alleged inefficiency of military aviation.—T. S. H.

TURKEY.

On April 9th a seaplane flew at Constantinople for the first time. Mr. J. D. Cooper flew a 100-h.p. Curtiss boat before a naval and military commission at Küçük-Tekmedje. The demonstration was organised by the Ottoman Naval League. On the 24th of this month Mr. Cooper proposes to fly across the Sea of Marmora, from Küçük-Tekmedje to Kadiköy.

BELGIUM.

Lieut. Jacquei, of the Belgian army, left Namur on April 16th on a biplane and flew to Saint-Trond, where he smashed his machine through landing heavily.

SWEDEN.

The Sodertelje (Scania-Vabis) Aircraft Factory—chief manager, Baron Cederström—has asked the Minister of War for a subvention of £3,000 for building Farman aeroplanes in Sweden with sole rights. Ten Farman biplanes have now been bought, and six Army officers will now be taught flying.—H.

SWITZERLAND.

The German aeroplanes were very successful in the military tests at Geneva, and the Commission has laid a favourable report, advocating their purchase, before the Diet.—B.

DENMARK.

We had an accident the other day just as the Upavon accident, but fortunately without fatal results. When landing on an Army Maurice Farman, Lieut. Hammelev got sight of some wire, but for lack of petrol his Renault motor had stopped. The biplane fell and smashed up, the aviator being able to rescue himself by a spring.—H.

ACCLES & POLLOCK, LIMITED.ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE****OLD BURY, BIRMINGHAM.** Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST**BLERIOT MONOPLANES**

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.**BLERIOT-AERONAUTICS.**Offices & Works : **BROOKLANDS AERODROME, WEYBRIDGE, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone : Byfleet 190.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts
should be made.*For Great Britain and the Oversea Dominions :***THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.****CELLON**As NOW being used by the
Admiralty, War Office and
leading Constructors.**LTD.****CONTRACTORS TO H.M. GOVERNMENT.****17, OLD BROAD STREET, LONDON, E.C.**

Telegrams : "AJAWB LONDON."

Telephone : 5359 London Wall

**CRITCHETT
WELDING & ENGINEERING CO.,
WELDING & BRAZING
.. SPECIALISTS ..****Aluminium Welding Guaranteed.**

Wire, Write or Phone

Tele. Address : Flexicablo, Watloo, London. Phone : 2424 City.

Postal Address :

80, BELVEDERE ROAD, LAMBETH, S.E.FOR EFFICIENCY
& RELIABILITY IN
AERO-RADIATORSSend your enquiries to
the well-known radiator
experts**The Motor Radiator Mfg. Co.,
GREET, BIRMINGHAM.**Telegrams :
NERLEAK, BIRMINGHAM.Telephone :
455 VICTORIA, BIRMINGHAM.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

CHINA.

Chinese aviators have been forbidden to fly over the city of Peking or even to approach within 30 kms. of that city. The interdiction has been imposed as the result of rumours arising that revolutionaries were engaging aviators to drop bombs on Peking.

Foreign Notes.

France.

M. Poulet, on a Caudron biplane (60-h.p. Le Rhone), made a further attempt on the duration records on Sunday at Etampes. After 10 hours, however, a faulty plug brought him down.

During the course of a race at the meeting organised by the Blériot firm at Buc on Sunday last, M. Deroye, piloting a tandem Blériot and with M. d'Albin as passenger, was being overtaken by M. Bidot, who with M. Pelado as passenger were mounted on a torpedo-bodied two-seater, when Bidot misjudging his height above Deroye's machine, possibly owing to a blazing sun shining into his eyes, caught the cabane of the lower machine with his chassis. Both machines came violently to ground together and the petrol tank of the lower machine burst and caught fire. M. Deroye and his passenger M. d'Albin were burnt to death. M. Bidot had a broken leg and his passenger appears to have suffered from a slight concussion only.

This should be a lesson to certain pilots at Hendon, who, despite Mr. Gates' warnings, insist on flying over or under another competitor in such a way that if he rose or dropped quickly a similar collision would certainly occur.

M. Rost, who recently flew 440 kms. in 4 hours, intends to attack the 24-hour record next month.

M. Scoffier is still flying along the Riviera on his Blériot waterplane. His latest flight was from Beaulieu to Monte Carlo. After he had alighted he handed his machine over to J. T. Weir, of Glasgow, who will be remembered as flying at Hendon. Mr. Weir made a perfect start and landing, although it was his first flight on a waterplane.

Herr Victor Stoeffler attempted a flight from Marseille on his Aviatik, Saturday morning (18th April), but damaged a wing tip float while on the water. After repairs he started once more, but got his right wing-tip float submerged, causing the machine to perform a half cart wheel and then to fall back on the left balance float, smashing his left wing and wrecking the float base. Herr Stoeffler and his mechanic were taken off by a motor boat, having suffered nothing beyond an involuntary bath.

M. Raulet has been testing an aeroplane at Champagne which is designed to give inherent stability. The machine, which has curved wings and is presumably on the Weiss, Etrich, and Handley Page lines, is said to have been perfectly successful.

On April 5th a speed handicap was arranged at the Blériot aerodrome at Buc between M. Gibert on a Vendome-Le Rhone monoplane and M. Duval on a Deperdussin-Gnome monoplane. The course was four circuits of a 2½-kilometre lap, and there were three heats. M. Gibert won two heats, and was thereby the victor.

Algiers.

On April 9th M. Ehrmann was killed at Bône, in Algiers, while giving a demonstration of looping. After making a prolonged flight upside down at a height of 1,000 ft. he dived to turn the right side up, but the machine maintained a vertical position till it hit the ground. M. Ehrmann had only recently begun flying again after his serious accident at Vienna in 1912.

Germany.

Weyl, the Otto pilot, started from Munich at 7.45 a.m. on March 30th for Vienna and landed on the Aspern ground at 5.45 p.m.

The Bussard Aviation Works at Johannisthal are retiring from the industry and selling off the entire plant and furniture.

The dissatisfaction between the Aeroplane Convention and the German Aeronautical League has found its climax in the withdrawal of all the firms forming the convention from

membership of the League. The immediate reasons for this step have not been made known so far.

Ascending at Dresden on a Gotha-Hansa Dove at 7 a.m. on March 26th, Mueller flew to Hamburg-Fuhlsbuettel, where he arrived at 3 p.m., but remained aloft for another two hours to become eligible for the 10-hours' prize of the National Aviation Fund. The curators of the Fund announce that £6,000 is still in their possession for prize-money, on which, however, the steady series of minor flights makes constant inroad.

Recently, Engineer Dahm piloted a Gotha waterplane from Warnemuende to Gedser on the Danish coast, carrying two passengers. Midway over the ocean a faulty valve caused an hour's stoppage for repairs, which were accomplished on a very stormy sea. After a stay of an hour and a half the visitors returned to Warnemuende. Their net flying time for the 45 kilometres was 32 minutes. Much has been made by the British Press of the feat of changing a valve on the water. It has already been done by the Naval Air Service, and by Mr. McClean on the Nile.

Germany's first "looper" is Gustav Tweer, who made successful experiments at Bork last week on a 50-h.p. Grade monoplane. Tweer's flights are causing no little sensation in the Empire, and he has arranged to demonstrate at a large number of cities. His machine is fitted with a landing chassis on top of as well as below the wings. The engine is a 4-cylinder inverted V type.

Piteous letters have arrived in Germany from the three balloonists, Herren Berliner, Hasse and Nicolai, kept under police surveillance at Perm for espionage since February 8th. A charge list of 150 pages has been made out against them, one of the accusations being that they were engaged in studying the wind currents for the Zeppelin airships.

It is reported that the Zeppelin works at Friedrichshafen are building a hydro-aeroplane to compete for the "Daily Mail" trans-Atlantic prize. The attempt is not expected to be made till next year.

100,000 marks (£5,000) in prizes have been given for the three-cornered flight—Berlin-Leipzig-Dresden. A fifth of the sum is to be kept for local meetings during the event, and the remainder awarded to the long-distance fliers.—B.

Russia.

A great aviation and aeronautical congress is to take place at Petersburg between April 20th and 25th, which will be open by Professor Jonkovsky, of Moscow, with a paper on "The Russian Aeroplane and Automatic Stability." It is estimated that eighty authorities on different aspects of flying will take part. Two free balloons will be liberated carrying medical men to examine the physiological effects of altitude on the human frame. The lighter side of the Congress will be supported by the pilots Raevsky and Gabert-Vlynsky, who will give demonstrations of looping. The six different sections of the Congress will deal with: Aerostats, aeroplanes of different types, motors, the scientific elements of aviation (mechanics, meteorology, etc.), naval and military aviation, and sporting aviation and general questions.

A remarkable story comes from Russia. A very rich and eccentric man named Lopornowski could not be persuaded to go into a motor-car, as being dangerous to his life. To the astonishment of all, when he died recently, he willed a sum of 200,000 roubles to the man conveying his body from his house to the churchyard in an aeroplane! Despite the hopes of the heirs that this appeal would be in vain, a young aviator named Posow promptly announced himself ready to execute the dead man's wish. The coffin was hoisted on to a biplane, and Posow reached the burial-ground in safety. In landing, a slight contretemps happened, but although pilot and coffin were injured somewhat, Posow was able to pocket his 200,000 roubles and depart in peace.—B.

Last week the Russian aviator Alechnowitch, in an attempt to beat the Russian duration record on a 12-km. circuit, remained in the air for 4 hrs. 56 mins. on a "Bréguet"-type Sikorsky biplane, which flew at 110 kms. (68.5 miles) per hour with a load of fuel weighing 570 lbs.

Italy.

Signor Cevasco, who last week had arranged to take a journalist a long round trip, found on starting that the rotary

engines (Lufts?) of both his passenger machines had been ruined by an injection of some virulent acid. He of course put the matter into the hands of the police.

Signor Widmer, the Triestine aviator who has been so unlucky in his attempts to fly across the Adriatic from Trieste to Rome, has succeeded in reaching the Eternal City this time. He was the first to cross the Adriatic some time back.

The resurrection of a De-Antoni—a machine of which nothing has been heard since Cagliani crossed from Pisa to Corsica, then a record oversea flight—seems to have taken place early in the month. Signor Moccacico, a Genoese pilot, quite illustrious in those far off times, flew one of these machines over nasty country in a bad wind. The feature of this monoplane was, and presumably still is, its large and very flexible wing and tail surface. A pilot recently told me that it was, in his opinion, the easiest monoplane to fly, and it proved itself extraordinarily safe for pupils.

May the school be revived!—T. S. H.

Denmark.

On April 11th a balloon carrying three passengers left Lubeck in Germany. The intention of the aeronauts was to land in Jutland, but they fell into the Cattegat, near the Isle of Anhalt, which is Danish territory. The two German officers and the merchant, who formed the crew, were rescued by fishermen.

During the Easter holidays Chanteloup, on his Caudron 60-h.p. Le Rhone motor has demonstrated looping the loop before huge crowds, most of them outside the Copenhagen Aerodrome. Wonderful were his descents with motor fully cut off—"La feuille morte."—Hr.

Holland.

On April 12th, Olieslagers looped the loop at Berg-op-Zoom in the presence of 10,000 persons, and "performed all the other exercises of the high school of aviation."

U.S.A.

Much sport was derived during the past few months at the Curtiss School on Lake Keuka by flying off the snow-covered ice and alighting on it in standard flying boats. The "get-off" is described as being far smoother than either that from land or water.

On April 6th Mr. Glenn Martin broke the American altitude record at Pomona, Cal., by flying to 14,200 ft. on a 100-h.p. tractor biplane.

One gathers that Mr. Arnold Kruckman, who rejoices in the grandiloquent title of "Chief of the Bureau of Aeronautics of the Panama-Pacific International Exposition," is making a tour of the United States in an endeavour to decide upon control stations for the proposed race round the world. This race is officially known as the "Circum-aviation of the Globe," and it is alleged that prizes now guaranteed amount to 300,000 dollars. It is also said that it is Mr. Kruckman's intention to inspect the entire course "as laid out." It occurs to one that if this intention is carried through it is much more probable that Mr. Kruckman himself will be laid out before he has made much progress on the Eastern Asiatic section. Judging by the Monaco Rallye fiasco the prospects of terrestrial circum-aviation do not appear seductive.

In Memory of the late Major Hewetson.

General Sir Horace Smith-Dorrien, Commanding-in-Chief Southern Command, unveiled, on Tuesday, April 14th, the memorial erected near Fargo Wood on Salisbury Plain to the memory of Major Alexander William Hewetson, R.F.A., who was killed in a Bristol monoplane near this spot on July 17th, 1913. The relatives who attended the ceremony were Mrs. and Miss Hewetson, Mr. and Mrs. Archer, others present including Major-General Sir Henry Rawlinson, Major-General E. A. Altham, Colonel W. H. Rycroft, Sir Edmund Antrobus, and officers of the Royal Flying Corps and the Royal Artillery. General Sir Horace Smith-Dorrien gave a short address, The memorial having been unveiled, the buglers of the Royal Artillery sounded the Last Post. The memorial is in the form of a masonry cross, bearing the inscription: "In memory of Major Alexander William Hewetson, 66th Battery R.F.A., who was killed while flying on the 17th July, 1913, near this spot."

The Naval and Military Engine Competition.

The engines for the above competition were to have been delivered at Farnborough by Thursday of last week. Although the list of those actually delivered was prepared on Monday last the exigencies of War Office routine have prevented that list from reaching this office up to the time of going to Press on Tuesday evening. Consequently the only particulars available are those relating to such engines as were still entered for the competition as at the end of March. These are as follows, the horse-power being that at which they are to do their six hours' qualifying run, and not their rated horse-power:—

AIR-COOLED ENGINES:—Anzani 100-h.p.; British Rotary 100-h.p.; Tips 100-h.p.; Gnome 100-h.p.; Isaacson 120 and 90-h.p.; Saville and Walton 120-h.p.; Vickers 100 and 140-h.p.; Wolseley 90-h.p.; also the following engines of un-stated h.p.—Hardy and Podmore; Hart Engine Co.; Hutchinson; Lavoie.

WATER-COOLED ENGINES:—Argyll 120-h.p.; Armstrong-Whitworth (A.B.C.) 100-h.p.; Beardmore Austro-Daimler 90 and 120-h.p.; Wessex 130-h.p.; Centrum 150-h.p.; Dudbridge (Salmson) 95, 130, 195, and 140-h.p.; E.N.V. 105-h.p.; Green 100-h.p.; Grossman and Florence 170-h.p.; Nesfield and Mackenzie 160-h.p.; Sunbeam (2) 135-h.p.; Vauxhall 130-h.p.; White and Poppe 130-h.p.; Wolseley 90 and 130-h.p.

Commenting on the Competition, the "Daily Mail," which is usually exceedingly well informed on matters affecting the Royal Aircraft Factory, says:—

"Mr. Mervyn O'Gorman, the superintendent of the Royal Aircraft Factory, has made an engine known as the 'R.A.F.," which answers every question and may be regarded as the Government's insurance, inasmuch as it is a thoroughly capable engine immediately available. Orders for this engine could be placed with small firms to keep them going, on the understanding that they developed their own ideas as well."

Engine makers will remember that this paper warned them that the R.A.F. would probably try to play the same trick on them that it played on the aeroplane constructors in 1912 when the B.E. was produced and everything else was condemned in its favour. As a matter of fact, I have good reason to believe that the R.A.F. engine has not yet been induced to stand up to a six-hours' full-power run. Incidentally, one who saw it recently said to me: "If it runs for ten minutes it becomes a glowing mass." In design the "R.A.F." is an imitation Renault, with imitation Salmson valve springs and an imitation Lelarge carburettor. One awaits with interest a properly authenticated test checked by the Aeronautical Inspections Department and free from any suspicion of faked instruments.

Engine makers of high standing will doubtless appreciate orders doled out half a dozen at a time for "Mr. Mervyn O'Gorman's" engine. As Mr. C. C. Turner tersely puts it in the "Observer":—"The Government's insurance is, of course, the British-made Austro-Daimler, or the Gnome, or the Sunbeam or the Green, or any other engine entered for the tests." If the Department of Military Aeronautics wishes to block all progress in engine design, as the old regime nearly succeeded in blocking aeroplane design, it will play the same trick with the R.A.F. engine as was played with the B.E. As Mr. Massac Buist put it in the "Morning Post":—"A policy of asking a Government Department to produce designs for what we may call 'booby' constructors to reproduce because they are unable to evolve anything of their own, puts a premium not on enterprising firms experimenting, but rather on their saving money and brains."

Let us hope the Director-General of Military Aeronautics will endeavour to foster progress in the future. It is possible to standardise too soon.—C. G. G.

The Aircraft Co.'s New Works.

The Aircraft Manufacturing Co., Ltd., have recently bought the tram depot at Hendon, which stands just off the main road north of Colindale Avenue, and will manufacture Farmans there as soon as the shops are properly equipped. This new departure shows the confidence Mr. Holt Thomas has in the future of the industry, and one wishes his enterprise every possible success.

Mr. Hucks' Arrangements.

Mr. B. C. Hucks was compelled to cancel his appointments during the past two weeks pending the arrival of two new looping machines from the Blériot works, as it has been found that the original type looper is liable under certain conditions to be unsafe. So far as straight loops are concerned there is nothing to feel afraid about, but sudden twists are undoubtedly dangerous in the first type. It will be remembered that some months ago at Hendon Mr. Hucks, when he descended, found that his tail-plane was twisted over to one side, and in the fatal accident to the late M. Hanouille, it was shown in a photograph taken while he was falling that the tail was twisted almost at right angles to the wings.

It will be remembered that the wings of the looping machine have an abnormal amount of warp by means of which it is possible to make the machine perform a corkscrew in relation to the centre line of the fuselage. This means that the whole tail-plane with the elevator has to be twisted through the air in opposition to its natural tendency simply by the strength of the fuselage, which is naturally very small at the point of attachment to the tail. The future looping machines are much strengthened in the fuselage and tail attachment.

One would suggest that for this particular work it would be as well if possible to couple the elevator flaps independently to the warp wires so that they would act as tail ailerons in the same way that the Caudron tail acts. It also strikes one that it would be a distinct saving to the structure of fuselages and tail booms of all machines if this system of differential tail-flaps were adopted all round.

A Change of Title.

The W. H. Ewen Aviation Company, Limited, has now altered its title to The British Caudron Company, Limited. Mr. W. H. Ewen's connection with the firm has ceased and the management will be entirely in the hands of Mr. Ramsay and Mr. Hunter.

The good work done by the Caudron machines in this country and in France shows that with energetic management the firm should have a very satisfactory future. The Caudron school has been very successful and it has turned out a number of remarkably good fliers. The machines have stood an enormous amount of hard work without detriment, and it seems possible for even the most clumsy pupil to execute the most elaborate falls in this type of machine without injury to himself, though it should be noted that owing to the simplicity of the machine and the ease with which it handles accidents of any kind are exceedingly rare.

It is surprising that the excellence of the machine in this respect has not been recognised by orders from the Services for machines for school use.

Mr. Goodden's Move.

Mr. F. W. Goodden is joining the staff of the Grahame-White Aviation Company at the end of this week, and one wishes him every success in his new employment. Mr. Goodden is undoubtedly one of the finest fliers we have yet seen in this country, for in addition to being very clever with his hands and possessing the skill necessary to perform the most sensational feats, he is, nevertheless, a really cautious flier, never taking unnecessary risks and never cutting things too fine. One learns that he will continue to fly the Caudron, which he has handled so well hitherto.

The Bristol School Changes Ground.

The British and Colonial Aeroplane Company have received notice from the War Office to vacate their sheds at Lark Hill on May 1st, as the ground is required for artillery ranges. The Bristol school machines and staff will then move to Brooklands and will remain there permanently unless future developments make it worth while for the firm to secure a flying ground of their own.

Meantime, the presence of M. Jullerot, Mr. Busteed, Mr. Sippe, Herr Voigt, and the Bristol School staff will be a distinct acquisition to Brooklands society, and the testing of new type Bristol machines, which are being built in large quantities for foreign Powers, will make the flying at Brooklands even more interesting than it has been of late.

Wood Versus Steel.

Mr. J. E. Huson, of the well-known firm of Mallinson's, writes:—

"The article by Mr. W. H. Sayers, page 461, considerably underestimates the efficiency of silver spruce as compared with steel. The weight per cubic foot of seasoned silver spruce for engineering calculations should be reckoned 28 to 29 lbs. and not 35 lbs., which forms the basis of Mr. Sayers' reasoning. The writer has had considerable experience with silver spruce and finds that 90 per cent. of seasoned planks range in weight from 27 to 29 lbs. per cubic foot.

"If this correction be accepted—verification is easy—the efficiency of timber (spruce) relative to steel will be much higher than Mr. Sayers claims. But a more important consequence is the resulting relative safe working load of spruce and ash, which as corrected will stand: Spruce, 28.5 load to weight; ash, 20.4 load to weight. This superiority of silver spruce to ash is industrially important, since clear silver spruce in long lengths can readily be supplied, whereas long ash is becoming scarce."

[Mr. Sayers points out that he purposely gave the extreme weight of spruce so that he could not be accused of using exceptionally favourable figures to support his argument.—Ed.]

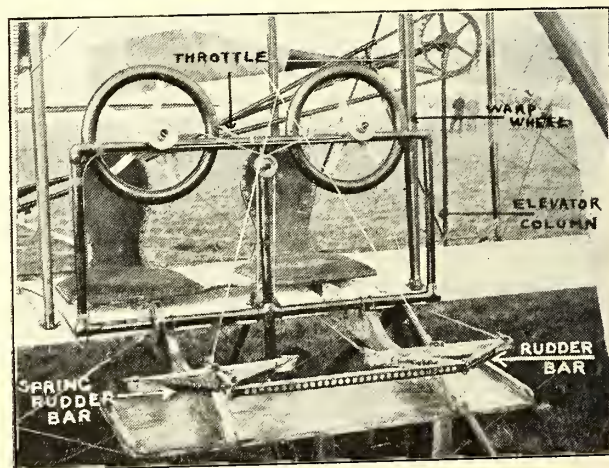
Flying in North Wales.

On Wednesday (April 15th), Mr. Vivian Hewitt, on his rebuilt Blériot (50 Gnome), made an hour's flight at about 2,000 ft. above Rhyl, and also made a trip to Point of Air Lighthouse, flying over the sands at about 15 ft., leading one of the local papers to remark that conversation with him was quite possible during the flight.

On Thursday Mr. Hewitt was again over Rhyl for about 45 mins., and on Sunday he made a flight to Colwyn Bay, where he gave an exhibition of spirals, etc., for about 15 mins.

Controls on the Beatty-Wrights.

One gathers that some error exists as to the control gear on the Wright machines used at the Beatty School at Hendon, several would-be pupils having expressed a doubt whether it was wise to learn the eccentric Wright control. As a matter of fact, the school machines have never been fitted with Wright controls, the ordinary wheel and foot-rudder controls being used. The accompanying photograph shows the arrangement of the dual control machine. The wheels work the warp, the fore and aft swing of the cross-bar works the elevator, and the rudder is worked by foot-bars. This last should be specially noticed. The pilot's foot-bar is coupled direct to the rudder, and is linked to the pupil's (on left of picture) by a channel-steel bar, but between this bar and the foot-bar springs are fitted so that if the pupil tries to push the wrong way the pilot can rudder the other way, merely having to do the extra work of overcoming the spring; thus the pupil cannot well upset the machine by a false manoeuvre.



The dual control on the Beatty-Wright.

The British Waterplane Victory.

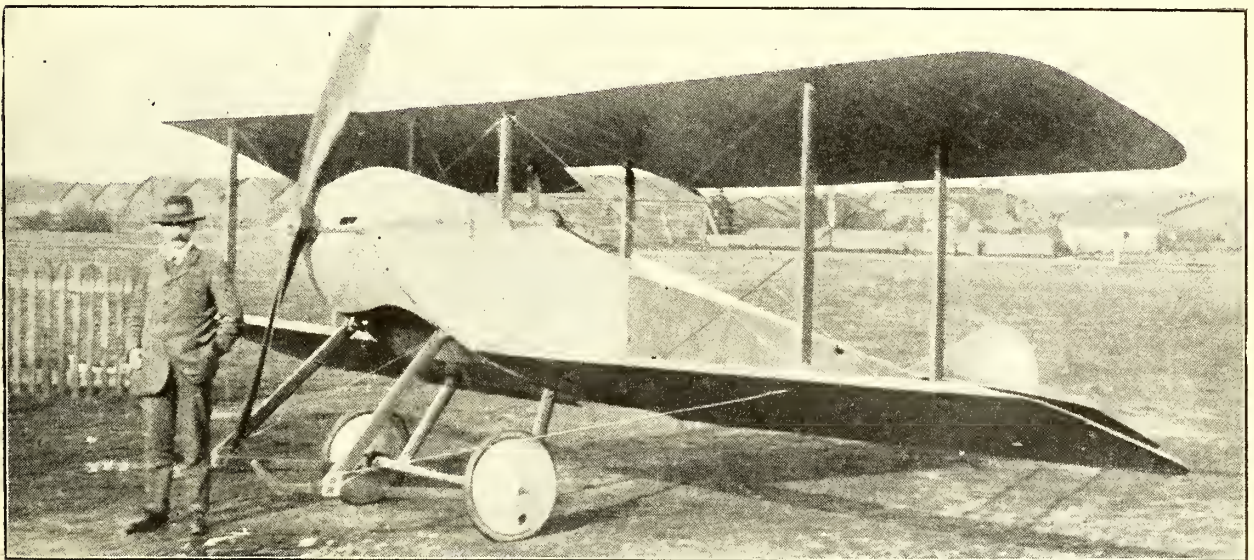
At last, and for the first time in history, a British-built aeroplane has won a classic race, the Schneider Cup having been captured by Mr. Pixton on a Sopwith waterplane on April 20th. All honour to those whose ability made it possible. The machine, which was illustrated in this paper alone last week, was a Sopwith "tabloid," exactly similar to those on order for the Army, but fitted with floats and a 100 h.p. Gnome engine. The fact that the little machine was able to stand up to the big engine and the battering of the heavy floats on the sea may, perhaps, comfort certain officers who believe the figures of rival aeroplane makers rather than the practical demonstrations of the past few months. This performance, Mr. Hawker's consistent flying on a similar but lighter machine in Australia, Mr. Barnwell's looping on a sister machine, and the constant cross-country work done by the naval pilots on the bigger and slower Sopwiths, which satisfy the Navy's engineers in every respect, should once and for all satisfy the Army that Sopwith design and construction can be relied upon. Also, the win shows that the monosoupape Gnome, shortly to be built in England, is really what its makers claim it to be.

Among those responsible for the British victory, first and foremost comes Mr. Sopwith himself, whose sporting spirit induced him to enter the machine, in spite of pressure of well-merited orders on his works, and, be it remembered, he himself is in no small degree responsible for the design, for it is his experience as a flier which makes his judgment of the many suggestions put before him so reliable. Next comes the pilot, Mr. C. Howard Pixton, known to many of us owing to his early flights on the little 35-h.p. Avro, and his excellent handling of Bristols, including the winning of the Manville Prize, as a first-class flier, but now for the first time attaining world-wide fame as the winner of a big international event. Also, a big share of the credit belongs to Mr. Sigrist, the

works manager of the Sopwith Company, whose ability in handling men, insistence on first-class work, and cleverness in personally designing details are some of the main causes of the success of everything Mr. Sopwith has done, from the winning of the £4,000 de Forest Prize to the securing of the big naval orders. And with him one must join Mr. Harry Hawker and Mr. Burgoine. The latter, a boat designer, who joined the firm not very long ago, has been responsible for the floats and various other seamanlike fittings in the Sopwith machine, and Mr. Hawker had much to say to the general lay-out of the original "tabloid," of which the Schneider Cup winner is a development. Also one should not forget Mr. Mahl, who tuned up the machine and engine here and at Monaco.

We have heard much, as success has followed success, of "Sopwith luck." I can assure my readers that Sopwith common sense, Sopwith thoroughness in working out details so as to leave nothing to chance, and Sopwith determination to go through with a thing that has once been decided upon are the component parts of that "luck," and one may add a further constituent, which really comes under the heading of common sense, the wisdom to scrap a thing which is obviously not a success, instead of wasting time and money tinkering with it and trying to persuade other people it is right. The same quality of quick decision which made Mr. Sopwith one of the most perfect pilots who ever flew, has made him a success in business. May "Sopwith luck" hold as firmly in the future.

The actual race is reported in its proper place at the end of the Monaco Meeting. At the moment the date of return of the conquerors is not known, but I would like to suggest that the Royal Aero Club should, if there is time in these busy days, arrange some sort of reception in their honour, so that those interested in aviation can show their appreciation of the good service done to British Aviation. C. G. G.



Mr. C. Howard Pixton, winner of the Schneider Cup, and £1,000, with one of the Sopwith "tabloids."

The Monaco Rallye.

On Sunday, April 12th, M. Garros arrived at Monaco from Brussels, which he had left on April 2nd, as recorded in last week's issue. This flight was not outside the time limit, as was then stated, so that M. Garros qualified as having completed

this itinerary. He left Monaco again on Sunday afternoon at 2.16 p.m. for Marseilles, on the return itinerary Monaco-Paris. He reached Marseilles at 3.55 p.m., where he remained for the night. On Monday morning at 6.48 a.m. he left Marseille, arrived at Albi at 9.25 a.m., leaving at 9.50, reached Bordeaux

at 11.30 a.m., and left for Buc at 12.5 a.m., arriving there at 5.21 p.m. His total time for the journey—Monaco-Buc—was 12 hours 11 mins., as against M. Brindejonc des Moulinais' 16 hours 2 mins. for the Madrid-Monaco itinerary.

M. Garros then went from Buc to Brussels by road or rail. He left at 6.45 a.m. on Tuesday, the 14th, and flew back to Monaco via Calais, Dijon, Marseille and Tamaris, in 12 hours 27 mins., thereby putting three complete flights to his credit, two of them within three days.

M. Mallard, who was reported last week as being at Marseilles, left there on Wednesday on his Nieuport and reached Monaco that day. His total time for the journey from Buc was 234 hours 23 mins.

M. Molla, on a R.E.P., with a Salmson motor, left Buc at 4.50 a.m., left Angers at 8 a.m., and arrived at Bordeaux at 12.50 p.m., leaving again for Marseilles at 1.55 p.m.

M. Verrier left Béziers, where he damaged his machine (as recorded), on Tuesday, the 14th, in the afternoon, and reached Marseilles at 4.3 p.m. Leaving Marseilles on Wednesday morning at 8.25 a.m. he safely reached Monaco at 12.36 p.m. His total time for the journey was 63 hours 15 mins.

M. Renaux, on a Maurice Farman, left Buc at 4.34 a.m. on Sunday, April 12th, left Angers at 7.6 a.m., landed at Gemozac owing to ignition trouble and reached Bordeaux at 1.45 p.m. He reached Marseilles and completed his flight to Monaco, arriving some time on Tuesday, 14th, his total time being 53 hours 58 mins.

Subject to ratification by the Aero Club of France, the result of the Monaco Rallye is as follows:—

1st. M. Garros (Morane-Saulnier, 80 Gnome), Monaco-Paris in 12 hours 14 mins. 21 secs. First prize 25,000 francs (£1,000) and prize of 5,000 francs (£200), fastest time over the Paris-Monaco itinerary.

2nd. M. Garros (Morane-Saulnier, 80 Gnome), Brussels-Monaco in 12 hours 27 mins. 13 secs. Second prize 5,000 francs (£200), and 5,000 francs for fastest time on the Brussels-Monaco itinerary.

3rd. M. Brindejonc des Moulinais (Morane-Saulnier, 80 Gnome), Madrid-Monaco in 16 hours 2 mins. 31 secs. Prize of 5,000 francs (£200) for fastest time Madrid to Monaco.

4th. M. Renaux (Maurice Farman, 70-h.p. Renault), Paris-Monaco in 53 hours 58 mins. 43 secs. Prize of 10,000 francs (£400) for fastest journey by machine with more than 25 metres square of surface.

5th. M. Verrier (Henri Farman, 80-h.p. Gnome), Paris-Monaco in 63 hours 15 mins. 28 seconds.

6th. M. Mallard (Nieuport, 80 Le Rhone), Paris-Monaco in 234 hours 23 mins. 30 secs.

7th. M. Garros, Brussels-Monaco in 245 hours 45 mins. 46 secs.

As some considerable amount of prize money has not been gained the Committee has decided to award this sum as follows:—

Pilots who have completed their flights in the Rallye and not gained any prize: MM. Verrier and Mallard 4,000 francs (£160) each.

Pilots who have not completed the whole flight, but have covered either the whole land flight or the whole sea flight, and have completed at least 1,000 km. (621 miles): Herr Hirth, MM. Brindejonc des Moulinais and Moineau, 3,000 francs (£120) each.

Pilots who have covered at least 500 km. (310 miles): Herr Stoeffler and M. Molla, 1,500 francs each (£60).

MONACO, Wednesday, April 8th. (Delayed in post.)

There is no doubt about the great "Rallye Aérien" being somewhat of a failure, for no competitor has up till now survived the passages between Marseilles and Monaco, with the sole exception of Brindejonc des Moulinais, and he smashed up this afternoon soon after starting on his journey from here to Vienna! Strangely enough, very little news reaches us here from the various starting and alighting places, the official telegrams being, apparently, written in an economical spirit and giving but the barest facts. Until to-day the only flying we have seen here has been that of a naval Caudron and an old Voisin which are attached to the French cruiser "Foudre," plus several passenger flights by Labouret on his Astra, which appears to be flying quite well and earning a good deal of money. Certainly the meeting has not a tithe of the interest of last year's so far, and one began to wonder if there would be anything at all to see here, even in to-day's eliminating race for the French team for the Schneider Cup Competition, for several entrants were having engine trouble.

To revert to the "Rallye," to-day we had sundry telegrams to say that nothing was doing anywhere, but in the afternoon Brindejonc des Moulinais set off for Vienna by way of Antibes and Genoa, his official starting time being given as 3 hrs. 3 mins. 7 secs. He had to do 10 kms. round the bay here, then fly westward to Antibes, a distance of 29 kms., alighting there and subsequently proceeding to Genoa (171 kms.) direct. It appears that he came down at Antibes and got off the water again all right, but met one of the countless awkward gusts that occur all along this most irregular coastline, finally side-slipping and smashing up on shore. Information came that he had fallen in the sea and been rescued by boats; but the pilot told me that he had smashed up on shore and all the people in the boats did was to look on!

We now come to the eliminating race for the eight French entrants for the Schneider Cup Competition, this being set for this morning at 10 o'clock. The entrants were: Prévost, on a Deperdussin monoplane, Gnome motor, monosoupape, 18 cyls., 200-h.p.; Garros, on Morane-Saulnier monoplane, Gnome motor, 14 cyls., 160-h.p.; Brindejonc des Moulinais, on Morane-Saulnier, Gnome motor, 9 cyls., 100-h.p.; Janoir, on Deperdussin monoplane, Le Rhone motor, 18 cyls., 160-h.p.; Espanet, on Nieuport monoplane, Gnome motor, 14 cyls., 160-h.p.; Levasseur, on Nieuport monoplane, Gnome motor, 14 cyls., 160-h.p.; Moineau, on Bréguet biplane, Gnome motor, 14 cyls., 160-h.p.; Bertin, on Nieuport monoplane, Gnome motor, 14 cyls., 160-h.p.

These were told to do four laps against the clock, equal to about 20 sea-miles, over a course in the bay, with certain compulsory starts and alightings on the course. However,



A Souvenir Post-card of the Rallye, carried by M. Verrier from Buc to Monaco and posted thence to "The Aeroplane."

there was a nasty sea and some wind, so these tests were dispensed with and the pilots were told they could get up in the harbour if they wished and cross the line *en plein vol*. Moineau and Bertin were absentees, but the others had their machines towed round in good time, Garros essaying a start at 10.30. He taxied straight out, but could not attain lifting speed within the confines of the harbour, the wind being behind him, and was in the rough water before he could lift. As he struck the first real seas he did a few wild bumps and finally got up some eight or ten feet with a jump, immediately rolling to port and coming down wallop on one float. After a moment's rest he had another try under the lee of the jetty and got up at last, coming down, however, after a short and very rollicking flight. The machine was put on the slip, when it was found necessary to readjust all flying wires and float bracings, as the shaking up had strained them considerably. The wing warp must have felt extremely groggy in such a sloppy condition. About eleven o'clock Brindejone des Moulinais had several shots at getting off on his similar, but lower-powered, machine, but failed absolutely to get into the air.

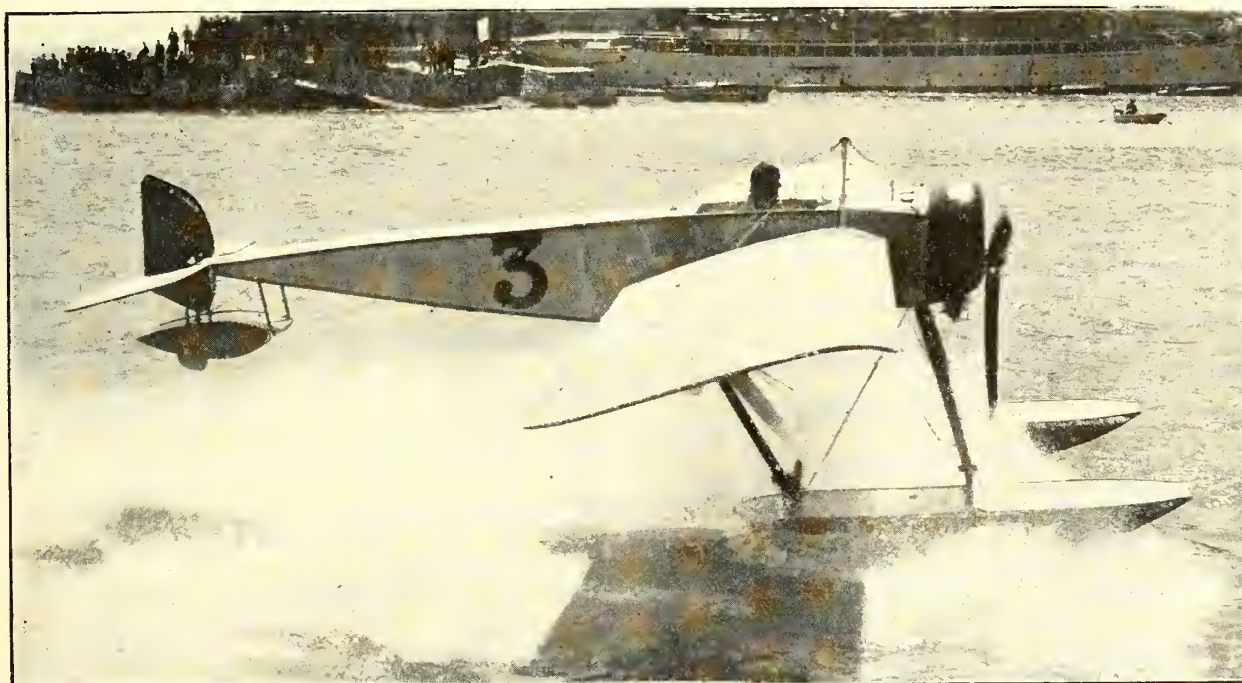
Meanwhile the two Deperdussins were alongside the slip being fitted up with fuel and oil (an amount of fuel and oil, or equivalent ballast, sufficient for four times the distance having to be carried), a big crew being engaged. Prévost was the first to start up his engine, but had a lot of trouble, the 200 h.p., 18-cylinder, monosoupape Gnome declining to run at all, except when liberally doped with "essence" injected by a big syringe into the crank case from forward. Two mechanics swung the propeller and got a short spin time after time, only to peter out after a few seconds, despite Prévost's assurance that both petrol and ignition were on. The tail float of this machine is shaped like a Brazil nut, "V" downwards, and not strutted away from the tail, the whole tail and elevator flaps being under water as the machine lay on the rather steep slip. Sitting with a companion and watching the performance, we suggested that the trouble might be due in part to the steep angle at which the engine was "climbing." The Frenchman apparently came to this conclusion eventually, for at last a boat was put under the tail to bring the machine onto a more level keel—with the slightest improvement in the world. Eventually the engine ran more or less well, and the machine was launched, when she promptly stopped again. However,

Prévost at last went taxi-ing, but soon came in and gave up the job as hopeless.

Much about the same thing happened in the case of Janoir, with a 160-h.p. Le Rhone engine in a similar machine, and it was being said that the "Dep" mechanics were rather savage, because they knew both engines were tuned up to the last notch and would have run if they had been required to do so. In fact, it was plainly said that the pilots did not want to start, the sea and wind being too rough for their liking. One can hardly credit such a thing as that, but then this is a queer world, after all, and funny things are known to happen in it.

Meanwhile, the two Nieuports lay quietly at their moorings until, at about half-past twelve, Espanet got aboard and started up his engine, getting off the water neatly in the harbour and making his official start at 12.39.39. Levasseur immediately followed on the sister machine, his time being 12.45.39, while Garros had to taxi right outside and turn head to wind before he could get up, having a very bumpy time of it. The Nieuports certainly seem to get off the water much more readily than the Moranes, especially when the surface is at all bumpy. Garros was only just within the starting time limit by 5 secs., getting off at 12.59.55.

Meanwhile, Espanet had been lapping steadily, but having a very disturbed time in the air, being bodily lifted and depressed several feet at a time by the unsteady wind blowing off the irregular-surfaced land, each of the others having the same treatment, of course. It was quite noticeable that each machine on passing a certain spot was dropped bodily some ten feet and then quickly lifted again just after. Espanet did his four laps all right, the times being 4 mins. 45 secs., 10 mins. 50 secs., 17 mins. 9 secs., and 23 mins. 54 secs., while Levasseur did two in 6 mins. 38 sec. and 12 mins. 38 secs., retiring on the completion of the second. Garros had trouble with his lubricating oil supply, for he did but a single lap, in 7 mins. 58 secs. On the strength of this farcical trial, the two Nieuports of Espanet and Levasseur and the Morane-Saulnier of Garros were selected to represent France on the 20th. Of course, the distance flown is somewhat uncertain, as the course is not laid out so accurately as that in an aerodrome, while a pilot is unable to cut his turns very close without running the risk of being disqualified for not fairly rounding the "pylons," but the speed shown was only about 60 m.p.h.



M. Brindejone des Moulinais alighting in Monaco Harbour on his Morane-Saulnier. Note the tiny water-rudder under the float.

MONACO, Sunday, 12th. (Delayed in post.)

Although there is still but little to chronicle, we have the satisfaction of having had another arrival, as well as a couple of departures, while there have been daily short flights of one or other of the machines.

On Thursday, Mallard left Marseilles at 8.30.10 a.m. on the Rhone-Nieuport, having a difficult start, and his machine "many times completely covered by the waves." Ten minutes later he met with engine trouble and was towed into Cassis (near Toulon) at 11.15. The pilot was unhurt, but the rudder was damaged.

Friday was another blank day, save for flights by Labouret from Mentone and Maïçon from Beaulieu with passengers. Labouret's old Astra does a rare lot of work in all weathers and is handled with consummate skill.

Yesterday (Saturday) we had a whole crop of telegrams reporting the starts, returns, and failures of several aviators. Garros was expected but did not leave Marseilles until this morning at 8.40.41, this being his third attempt. Strangely enough, the sea there was flat calm, while we have had quite a rough day here—just the reverse of what has been the case for some days now. Garros made his "landing" and immediately went on from Tamaris at about 9.20, arriving here after his long struggle at 11.30.57.

Having lunched, he started off for Marseilles again on his return journey, making the distance in good time with a fair wind and arriving at a high altitude. Garros is flying a standard machine, practically the same in all essentials as that which he had here for the Schneider Cup last year. About 2.30 p.m., Brindejone des Moulinais went off on his Schneider Cup Morane (late No. 3, but now No. 14), the machine he has been using for the "Rallye" being too badly smashed for further use until considerable repairs have been carried out. At his first start the engine stopped when he had got some eight or ten feet into the air, and he came down rather lumpily on the ugly swell in the harbour-mouth, having quite a narrow escape from a bad smash. This machine, by the way, has a tiny water rudder, about 12 in. by 8 in. and oval in shape, much too small to be of the slightest use.

MONACO, Wednesday, April 15th.

So the great Rallye Aérien is over. On the spot, and with the ennui of the past fortnight still heavy upon me, it is both difficult and unfair to attempt to draw any conclusions as to the real measure of success—or failure—achieved, but one certainly cannot write with the slightest enthusiasm about the

affair as a whole, whatever one may feel is due by way of tribute to those aviators who have put up such plucky fights and, in one or two instances, performed so brilliantly over long and by no means easy courses.

As will be seen, Garros has practically swept the board, despite the fact that his first attempt was so slow, being, indeed, interrupted by a journey from Dijon to Monaco in order to compete in the eliminating race for the French Schneider Cup team.

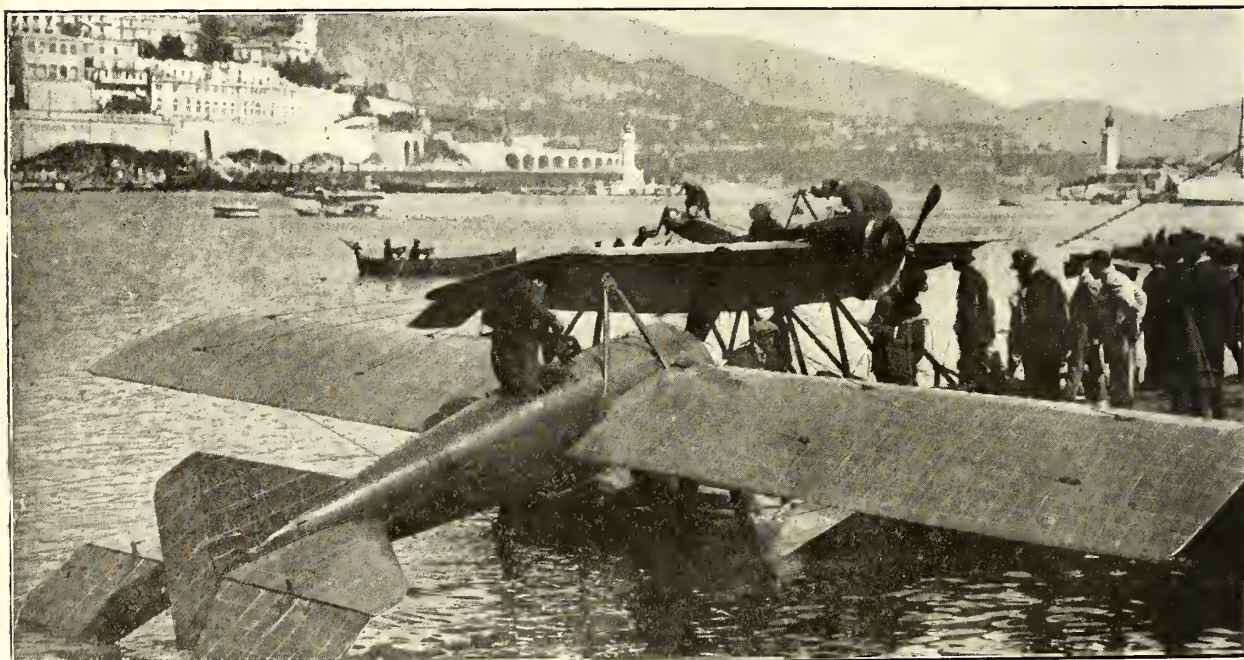
Garros, who had arrived there on Sunday morning, and shortly afterwards flown to Marseilles on his Morane-Saulnier, left there at 5.27.43 on Monday morning for Buc, while Brindejone des Moulinais, on a similar machine, left Genoa for Rome some forty minutes earlier.

Verrier was said to have landed in a wood owing to engine trouble, damaging his machine. It appears, however, that he came down in the dusk in a field that appeared to offer a good landing, but found the ground uneven and falling, so ran into a tree before he could pull up. From Marseilles also came the news that Mallard had tried to start but had been towed in again by a torpedo-boat.

Yesterday (Tuesday) we heard that Garros had arrived at Paris, his time being given as 12.14.21, his overseas flight of 1.41.27 being the best performance to date. After sundry rather incoherent wireless and other telegraphic messages, it was announced that Renaux had left Marseilles at 12.52.2, followed by Mallard at 1.1.59, while Moineau had retired from the contest at Béziers. Renaux, on the Maurice Farman with Renault engine, turned up here at 3.45, while Mallard came in about ten minutes past four, going directly into the harbour, however, instead of doing the requisite two laps of the course in the bay. Therefore he had to get under way again in his Rhone-engined Nieuport, his final timing in being at 4.45 p.m.

Verrier reached Marseilles at 4.3.52 p.m., it being said that he looped the loop on arrival, an impeachment he has himself denied to me when asked for the truth. Garros arrived at Marseilles from Brussels at 4.49.48 having done the overland portion of his third journey in 10.7.18.

This morning wires began to come in announcing the progress of the last of the competitors to remain in the contest, and Garros arrived here at 10.48.45; Verrier came in at 12.36.16, having flown from Paris at the fourth attempt, of which the first two were from Hendon. He did the overseas part of the course on the machine on which he started from Buc, having changed the wheels for floats at Marseilles, and



M. Prévost's Deperdussin, which did not fly, two Moranes, and, in the left distance, a Nieuport in Monaco Harbour.

"Beautifully smooth running, thereby adding to general comfort, in addition to saving engine power."—AEROPLANE.

PALMER CORD TYRES

fitted to your car will give you greater speed, greater comfort and greater safety, with reduced petrol consumption.

In the Palmer Cord Tyre Book you will find proof of the above. May we send you a copy?

Will you write for it to-day?

THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines)

Used by Messrs. Hucks
and Hamel in their
'looming demonstrations'

Officially recommended
by the Gnome Engine
Company, England



"For the Highway
and
the Skyway"

C. C. Wakefield & Co.
Wakefield House
Cheapside, London E.C.

C. D. C.

"EMAILLITE"

THE PREMIER DOPE
British Manufactured

"AS TIGHT AS A DRUM."

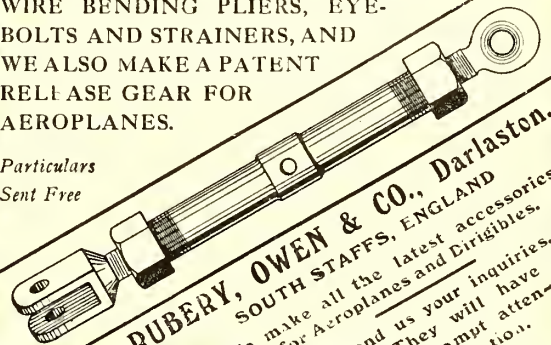
As adopted by H.M. Government and
all the leading Manufacturers.

The BRITISH EMAILLITE Co., Ltd.
30 Regent Street, Piccadilly, S.W.
Phone, 280 Gerrard. Wire, Santochimo, London



WE MANUFACTURE FOX'S PATENT
WIRE BENDING PLIERS, EYE-
BOLTS AND STRAINERS, AND
WE ALSO MAKE A PATENT
RELEASE GEAR FOR
AEROPLANES.

Particulars
Sent Free



RUBERY, OWEN & CO., Darlaston,
SOUTH STAFFS, ENGLAND
We make all the latest accessories
for Aeroplanes and Dirigibles.
Send us your inquiries.
They will have
prompt attention.

C. G. SPENCER & SONS. HIGHBURY GROVE, LONDON, N.

Manufacturers of
Aeroplanes, Airships, Balloons, and
Aeronautical Apparatus of every description,
Fabric, Propellers and Accessories.

Write for List.

Telegrams: "AERONAUT, LONDON."

Telephone: DALSTON 1893.

GODDARD'S MOTOR, MOTOR-CYCLE, and CYCLECAR HOUSES.



ft.	ft.	ft.	high	£	s.	d.
8	6	7	3	3	16	0
10	7	8	"	5	8	0
12	8	8	"	6	15	0
14	9	9	"	8	17	6
15	10	9	"	10	0	0

Carriage Paid.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned $\frac{3}{4}$ in. T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing. Large Illustrated Catalogue with prices of other houses, post free. Makers of Portable Wooden Buildings of all descriptions. GODDARD'S, Ltd., Crown Works, Vicarage Lane, Ilford, Essex. Telephone: 880 Ilford.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

the wings give plain evidence of the smash near Béziers a few days ago.

Garros, in addition to some £1,400, takes the prizes presented by the President of the French Republic, by the Grand Duchess Anastasia of Mecklenburg-Schwerin, by the French Minister of Marine, and by the Aero Club of Belgium, so he, at least, is repaid for his arduous and most admirable efforts. The strain of the past fortnight must have been terrific, for he flew the whole itinerary three times, equal to something closely approaching 4,000 kilometres, or 2,500 miles, in addition to his efforts here in the Schneider Cup trials, etc.

It seems rather hard luck on Brindejone des Moulinais that he should have done so badly on his return, or from Monaco, flights, but his time here was considerably longer than that of Garros, though but a third of that of Renaux, who takes twice as much money.

As regards the machines that are here for the Schneider Cup race on the 20th, there is practically nothing to say, for they depart but little from standard practice. The only really unknown quantity here at present is the flying-boat entered as representing Switzerland and to be piloted by Burri, this being made by the Franco-British Co., and powered with a 100-h.p. Gnome engine. The crew of this machine are extremely anxious that no one shall inspect it closely, and we nearly came to blows to-day! However, one may say that it is a small cross between the big Sopwith and the Perry-Beadle that were at the late Olympia Show. That is to say, the arrangement of planes, engine, crew, and fore part of float hull are similar to the Sopwith, while the tail surfaces are carried on a long backward extension of the boat like those of the Perry-Beadle, though the surfaces and rudder are of ordinary construction. Generally, the machine is strongly reminiscent of that on which Gaudart lost his life here a year ago, and one gathers that it has—like the other—not been flown before coming here. To-day they were tinkering with the boat, the latter being disconnected and turned upside down in the tent in which the machine is housed. The whole appearance did not strike one as being anything very startling, while a cursory glance round did not reveal any specially good workmanship. The lower surface is of much less span than the upper, lateral control being by ailerons on the upper surface only. The engine and propeller are carried by the struts of the central cellule, Sopwith fashion, while the pilot sits in the boat just forward of the main lower surface. The float has a single step, which comes plumb below the leading edge of the planes, so that when the machine is on the point of rising the centre of buoyancy of the hull (which is then really a dynamic centre, and not a static one, as when at rest) will be well forward of the centre of gravity. From the step aft the bottom is quite flat for some distance, and then curves up to carry the tail surface. There is no sharp or square trailing edge as usual, and I imagine the water will tend to follow up the tail and cause some drag when getting off. The job is not by any means one for rough water, and there is considerable surface exposed to the rush of air, while the whole of the vertical and semi-vertical surfaces of the fuselage hull are well below the centre of thrust and gravity. By the way, there is a small triangular fin forward of the rudder, and fixed tail surfaces of some area in addition to the elevator flaps.

THE SCHNEIDER CUP RACE.

MONACO, Sunday, April 19th.

On Thursday, Mr. Sopwith got possession of his machine here, and soon had her out of the packing case and standing on her floats in a small Hervieu tent at the extreme end of the "street." In good time on Friday the surfaces were fitted, and the machine was in shape for flying, with the exception of the engine—which was somewhat badly rusted externally, probably through the salt "sweating" out of it after its immersion at Hamble at the first trial. Of course, she is frankly a racer, and the floats and chassis might need some small amount of stiffening up for regular work. Some of the Frenchmen here rather pooh-poohed the idea of a biplane for racing work, but they have undoubtedly come to the conclusion that there are possibilities in the biplane after having seen the little Sopwith.

All being prepared last night—when a flight would have

been quite possible, though inadvisable on account of the state of the sea—the British contingent turned out at five this morning, and proceeded to get "No. 3," loaded with two hours' fuel and oil, into the water. The engine started up nicely, and the machine shoved clear, Mr. Pixton then taxiing out towards the mouth of the very awkward little harbour that has been allotted to the aeroplanes. Head to the light on shore wind, the "tabloid-in-water"—[N.B.—In suspension not in solution.—Ed.]—got up into the air with a run of certainly not more than 100 feet from the moment the engine was opened out, the quick get-off being in great contrast to the heavy and sluggish lift of several of the French monoplanes that have been flying here. Mr. Pixton flew round and about for some six or eight minutes, doing some prettily banked turns, and travelling at what appeared to be quite a high speed, though one cannot judge speed very accurately over the water here. The landing was neatly made, and the machine taxied up on the slip almost entirely clear of the water, so that the transport carriage could be run underneath readily. Possibly Pixton will go round the course this evening, so that he may get the lay of the land.

Yesterday afternoon the Curtiss entry arrived "en plein vol," and proved to be an ancient contraption that should have been on the scrap-heap long ago. Of the old biplane type, with overhanging upper plane, she has a long, shallow, single-step float, with cylindrical metal wing-tip floats and "spring boards." The engine is an 8-cylinder Curtiss. The tail is built up with bamboo booms, and there are small fixed surfaces, both vertical and horizontal, in addition to rudder and elevator. The pilot, poor wretch, sits right out in front of everything. The surface fabric is all baggy and doped in black, and badly wants renewing. All bracing is by piano wire of light gauge, and about the only thing in the machine one can really admire is a very neat and clever idea in spring clips to secure the straining screws.—A. C. BURGOINE.

THE AEROPLANE's special correspondent at Monte Carlo wired on Monday night as follows:—"In a south-east wind blowing from fifteen to thirty miles an hour, and a fairly rough sea, Mr. Pixton won the Schneider Cup Race. His time was two hours thirteen seconds, and he was running on eight cylinders during the last thirteen laps. He flew very low, and turned with 60 degree banks, which were greatly admired. M. Burri was second on the F.B.A. boat, taking three hours twenty-three minutes thirty seconds. Dr. Espanet stopped after eighteen laps; Lord Carbery after two laps. M. Levasseur stopped after eighteen laps, and changed to M. Weymann's Nieuport, restarting at four o'clock, but he was not timed."

Mr. Pixton's time of 2 hrs. 13 secs. for 150 sea miles, or 172½ miles, is equal to a speed of 86 miles per hour, a remarkably fine performance considering that he had never flown round pylons and was running most of the time on 8 cylinders, and, by the rules, had to land twice. The actual speed of the machine must be over 90 m.p.h., and so she is far the fastest waterplane in the world.

M. Burri, the Swiss pilot, will be remembered as flying splendidly for Bulgaria during the Balkan War. It is greatly to be regretted that the other pilots failed to complete the course, as the Sopwith was so much faster that its victory would have been the more emphatic had they finished. At the same time, it shows that it is not only British engines which stop when not desired.

It is noteworthy that the Sopwith used a British-built Integral propeller and the F.B.A. a French one of the same design. Both the Sopwith and the F.B.A. used monosoupape 100-h.p. Gnômes.

The real interest of the British Press in British aviation is shown by the fact that Reuter's brief telegram seems to have been sufficient for their enthusiasm over our first international victory. The "Mail," which is so fond of impressing on its readers all it has done for aviation and its faith in British waterplanes as our safeguard in time of need, omits to draw any lesson from the Sopwith's performance. It gives just three times as much space at the head of a column to a blind man's five-minute trip in a foreign aeroplane, while the Schneider Cup win is stowed away at the bottom of a page. Truly we are a sporting and patriotic people.—C. G. G.

Flying at Hendon.

The first Thursday race meeting of the season was held at Hendon on the 16th and some good flying was done in beautiful weather. All the Grahame-White pilots were out and much looping was done by Messrs. Carr, Noel, and Goodden.

The speed handicap resulted in a win for Mr. W. Birchenough, followed by Messrs. Marty, Carr and Strange.

In the evening M. Noel and Prince Paul Sapieha, after looping the loop, made an apparently uncontrollable landing, smashing the machine, but escaping with cuts and bruises.

On Friday, which was devoted to Doctor Barnardo's Homes, flying took place in a fairly high wind.

The flying at Hendon on Saturday was very good considering the bad wind. Mr. Carr was first out on the Grahame-White tractor biplane and set to work to loop steadily. He was soon joined by Mr. Birchenough on a Grahame-White box-kite, who descended in very steeply banked spirals. M. Marty flew the 60-h.p. Morane and Mr. Strange the G.-W. two-seater Blériot, and he handled this new mount very well indeed, though it did not appear to be lifting strongly.

Mr. Goodden gave an exceedingly good display of looping. He has the knack of keeping the machine under perfect control all round the loop and recovers as coolly as if he were merely flattening out from a glide.

Owing to the high wind a cross-country handicap was substituted for the speed race. There were four entrants—Mr. Birchenough on G.-W. biplane, Mr. Carr on G.-W. tractor, Mr. Strange on 80-h.p. Blériot, and M. Marty on 60-h.p. Morane. The result was a close finish which looked almost like a dead heat between Messrs. Marty and Carr.

Later in the evening Mr. Hall brought out his 50-h.p. Avro.

Sunday was an equally good day, though squally, and many distinguished visitors were present. Mr. Grahame-White flew with passengers on the Morane, and Mr. Hamel looped nearly twenty times. Messrs. Carr, Marty and Goodden also looped. Messrs. Cripps and Birchenough flew box-kites, Mr. Strange the Blériot, and Mr. Hall his Avro.

Flying at Brooklands.

On Tuesday of last week Mr. Lan Davies on his Avro flew to Hendon. Later, Lieut. Humphreys arrived from Farnborough on an Army M. Farman No. 322, and returned. In the afternoon a M. Farman circled the aerodrome but did not land. Mr. Hunt was out on his 50-h.p. Blériot.

On Wednesday, Lieut. Stoddart, No. 5 Squadron, came over from Farnborough on a M. Farman and flew back with a passenger. The Sopwith scout was returned to the works for alterations, and Lord Edward Grosvenor's Blériot arrived by road. Mr. Jack Alcock was out on the Sunbeam M. Farman. Later, Mr. Harry Busteed went to Farnborough on the 80-h.p. Bristol scout to put her through the tests. Lieut. Robin Grey arrived on a 50-h.p. Avro, later returning to Farnborough. Lieut. Collet, R.M.A., was out on the D.F.W. and descended in an excellent spiral. Mr. de Havilland arrived with a passenger on B.E. No. 332 and returned to Farnborough. Messrs. Blackburn and Hunt did hops on the Blackburn tractor.

On Thursday, Mr. Collet went to Portsmouth with Mr. Blackburn as passenger on the D.F.W. and came back during the afternoon. Mr. Collet then did some good flying with heavily banked turns, etc. Mr. Busteed returned from Farnborough. His official speed variation was 94 to 44 m.p.h.

On Friday, Lieut. P. B. Joubert de la Ferté, No. 3 Squadron, R.F.C., came over from Netheravon on an 80-h.p. Blériot, taking 2 hours 20 mins. for the journey against the wind.

On Saturday, Mr. Jack Alcock was out morning and evening on the Sunbeam M. Farman. Mr. Joubert returned to Netheravon. Mr. Waterfall was out on the Martinsyde.

On Sunday, Mr. Barnwell flew in a bad wind on the Vickers Blériot, and later took passengers on a Vickers box-kite, 70 Gnome. Mr. Waterfall flew the Martinsyde but came down with valve trouble. Mr. Merriam flew a Bristol box-kite.

Flying at Harrogate.

Last week, Mr. Harold Blackburn made many passenger flights at Harrogate, taking several lady passengers on his 80-h.p. Blackburn monoplane. On Saturday with Dr. Christie he flew to Ripon, and later flew to Saltburn.

Flying at Wolverhampton.

Mr. Leo Harris writes from Wolverhampton apropos Mr. Hamel's exhibitions there on Thursday and Saturday last:—
"As a resident of Wolverhampton, I should like to give my impressions of a visit to Dunstall Park on Saturday, when I witnessed in the company of some 5,000 odd people, Mr. Gustav Hamel's wonderful looping performances. I desire here to state that although I have seen several others loop the loop on various occasions, including Pégoud, the Pioneer, I had not before realised the enormously rapid strides that flying has made in the last few years since, in the summer of 1910, Wolverhampton held its first ever-to-be-remembered Flying Meeting. I do not think the vile weather conditions of that memorable week entirely accounted for the fact that (with few exceptions) 'flying' was conspicuous by its absence and 'hopping' was a favourite pastime of most of the competitors, but as I examined Hamel's Morane 'looper' on Saturday, and took stock of the man himself, I realised that not only have the machines and their engines undergone, in that space of time, vast changes in design and construction, but that their pilots have made an exhaustive study of the science of flying.

"Many were the comments, particularly by the fair sex, on the youthfulness of the man who had such a thorough mastery of his machine, and many were there who envied such interested personages as Mr. Staveley Hill, M.P., Miss Vesta Tilley, and others, including your humble servant, who, through the ever charming courtesy of Mr. W. E. de B. Whittaker, had the privilege of a chat with Mr. Hamel.

"His youthful appearance no doubt accounted for the following conversation overheard in the crowd:—1st Lady: 'Oh, look, he's taken off his cap and goggles. Isn't he a darling?' 2nd Lady: 'Yes; I think he's just an angel!'—But we all sincerely hope he will not be one for many a long year."

Flying at Eastbourne.

The Eastbourne Aviation Co. had a highly successful day with their new waterplane on Easter Monday, and can claim really to have started the British Waterplane Season. Although so early in the year, Mr. Fowler took up 32 passengers during the day, thus beating the record for last year by four.

Incidentally the machine was very nearly lost one evening during the week. The landing party had not arrived at the sheds from the front when Mr. Fowler landed, so he left the machine in charge of one of the shed hands while he went ashore. The man let the machine drift out while he was sitting on one of the floats, and finding he was getting away from the shore, dropped off the float into the water up to his neck, and was so astonished that he let go. Fortunately, Mr. Fowler heard his outcry and managed to get the machine back.

Everything points to a highly successful season for the Eastbourne Co., as their seaplanes are always kept in excellent order, and Eastbourne is frequented by a good class of visitor who can afford to pay for passenger flights. The firm's school is also likely to do well, for its success in turning out really good fliers in the past is established. Mr. Fowler's name as an instructor, and the good, sound workmanship of the tractor biplane shown at Olympia will give everyone confidence in the construction done under Mr. Fowler and Mr. Frank Hucks.

Flying at Shoreham.

Despite wind the Pashley School was out whenever conditions permitted, Mr. C. L. Pashley giving exhibition flights, and Mr. B. F. Hale, a promising pupil, flying circuits well. The second biplane that is being built is progressing well and should be finished shortly.

The Shoreham School was out whenever weather permitted, the Farman type biplane flying well.

On Wednesday last week Lieut. Marix, R.N.R., from Eastchurch, flew over to Shoreham on a Sopwith 80-h.p. Gnome and made a trip past Brighton quite low, giving the crowded holiday front an excellent opportunity of observing the machine.

On Thursday last Lieut. G. N. Humphreys, R.F.C., an old Shoreham pupil, arrived from Farnborough on a 70-h.p. Renault Maurice Farman in a very strong wind. He had a difficult journey and took 2 hours to cover 48 miles. He landed well, but after he stopped a gust of wind lifted one wing and did considerable damage to the chassis and under-carriage.

The Week's Work.

Weather Report for Week Ending April 19th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ..	Fine	Windy	Windy	Good	Imposs.	Fair	Windy
Eastchurch ..	Fine	Fine	Fine	Windy	Windy	Fair	Fine
Hendon ..	Fine	Fair	Fair	Windy	Windy	Fair	Windy
Montrose ...	Bright	Gale	Bright	Bright	Misty	Windy	Fine
Salisbury Plain	Windy	Windy	Good	Imposs.	Imposs.	Windy	—
Shoreham ...	Fine	Windy	Windy	Fair	Windy	Windy	Windy

School Reports.

Brooklands.—AT VICKERS SCHOOL: Instructors: Messrs. Barnwell, Knight, Eldson and Webb. Pupils with instructor on machine: Comte FitzJames (1), Capt Phillips (7), Mr. Dawson (3), Mr. Murray (6), Mr. Underhill (3), Mr. Liddell (2), (biplane). 8's or circles alone: Comte FitzJames (5), Mr. Wilberforce (1), Mr. Dawson (1) (all biplane). Certificates taken during week: Comte FitzJames, Mr. Wilberforce, Mr. Dawson (all on biplane). Machines in use: Two biplanes.

AT SUNBEAM CO.—Mr. Alcock or Maurice Farman (150-h.p. Sunbeam), making exhibition and cross-country flights every day except Thursday.

AT BRISTOL SCHOOL.—Instr: Mr. Merriam. Pupils with instr on machine: Lt Smithiers (9), Mr. Racine Jacques (1), Lt Britten (1), Mr. Lucas (1). Strts or rolls alone: Lt Smithiers (1). 8's or circles alone: Lt Smithiers (2). Machines in use: Two school biplanes. On Wednesday, Mr. Busted flew Bristol "Scout" to Farnborough.

Eastchurch.—The Hon. Maurice Egerton made three flights on his Short biplane (50-h.p. Gnome) on Monday. Prof. Huntington flew his own machine on Monday and on Sunday. Mr. Ogilvie flew his Wright biplane on Wednesday, Thursday and Sunday, and Mr. Frank McClean made a flight on Sunday with a lady passenger. On Tuesday Mr. Sidney Pickles, now almost recovered from his smash with Mrs. Stocks, had his Blériot (60-h.p. Anzani) out, but contented himself with taxiing, but early on Sunday morning he made an extensive flight. Mr. Pickles was again out in the evening, but was forced to descend owing to engine trouble.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors: Messrs. Cripps and Birchenough. Pupils with instructor on machine: Messrs. Smiles, Boysen Cowley, Robinson, Moore, and Major Piercy. Strts or rolls alone: Prince Sapieha, Mr. Parker, Mr. Smiles and Major Piercy. 8's or circles alone: Prince Sapieha, Mr. Parker. Certificate taken: Prince Sapieha. Machines in use: Grahame-White school biplanes.

AT W. H. EWEN SCHOOL.—Instructors: Messrs. F. W. Goodden and W. T. Warren. Strts or rolls alone: Mr. Verney and M. Vittoz-Gallet. 8's or circles alone: Mr. Curtis and Mr. Carruthers. Machines in use: 35-h.p. Caudron biplanes.

AT HALL SCHOOL.—Owing to the school closing for Easter vacation, very little school practice last week. Instr: Mr. J. L. Hall. Pupils: Messrs. Roy Gibson and Haines. Strts on Blériot "Penguin." Mr. J. L. Hall exhibition flights Thursday and Saturday, carrying several passengers.

AT BEATTY SCHOOL.—Instructor: Mr. Baumann. Pupils with instructor on machine: Messrs. Ding (63 mins.), Ruffy (new pupil) (48 mins.), Stewart (40 mins.), Walls (42 mins.), Bentley (24 mins.). Mr. Ding making excellent 8's and landings.

Salisbury Plain (BRISTOL SCHOOL).—Instrs: Messrs. Jullerot, Stutt, Voigt. Pupils with instr on machine: Mr. Parker (4), Mr. Hay (3), Capt Walcot (2), Lt Rabagliati (1). Strts or rolls alone: Lt Myburgh (2), Lt Bolitho (2), Lt Rabagliati (2), Mr. Hay (1). 8's or circles alone: Capt Walcot (1), Lt Myburgh (3), Lt Rabagliati (3). Certificates taken during week: Lt Bolitho and Lt Harman on April 15th. Machines in use: Three school biplanes.

Shoreham.—AT PASHLEY SCHOOL: Instructor: Mr. C. L. Pashley. Pupils with instructor on machine: Messrs. Wright, Nicholl, Mortimer, Dawson. Strts or rolls alone: Messrs. Nicholl and Hale. 8's or circles alone: Mr. B. F. Hale. Machines in use: Farman type biplane, 50 Gnome.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.

Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

THE Proprietor of Patent No. 6527 of 1911 for "Improvements in Airships" is desirous of entering into arrangements by way of licence and otherwise on reasonable terms for the purpose of exploiting the same and ensuring its full development and practical working in this country.—All communications to HASELTINE, LAKE & CO., Chartered Patent Agents and Consulting Engineers, 28, Southampton Buildings, Chancery Lane, London.

THE Proprietor of Patent No. 9445 of 1911 for "Improvements in Aeroplanes" is desirous of disposing of the patent rights, or of negotiating for the grant of licences to work thereunder.—All inquiries should be addressed to JOHNSONS & WILCOX, 47, Lincoln's Inn Fields, London, W.C.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

W. H. EWEN SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best equipped School, enquire what the Ewen pupils are doing on the Caudron.

W. H. EWEN AVIATION CO., LTD.,
London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

LEARN to Fly at the Premier English Aviation School. Tuition given on Avro tractor biplanes, Blériot monoplanes, Caudron biplanes, Deperdussin monoplanes. Moderate inclusive fees, flying and constructional. **PASSENGER FLIGHTS AT MODERATE CHARGES.** Exhibitions of "looping the loop" and upside-down flying, etc., given by J. Lawrence Hall.—For full particulars apply to **HALL AVIATION CO., Aerodrome, Hendon, N.W.**

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

LIVERPOOL AVIATION SCHOOL, Waterloo, near Liverpool.—Tuition, Passenger Flights, Exhibitions, on Blériot monoplanes (3). Melly's infallible release gear. Terms and prices on application.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

ENGINES.

EXCHANGE.—30 h.p. Alvaston two-cylinder aero engine for magneto motor-cycle.—**E. BALL, Sunnymount, Shoreham-by-Sea.**

25 H.P., water-cooled, excellent condition, complete with propeller boss, £20 or offer.—174, West Green Road, Tottenham.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.**

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE, 166 Piccadilly, W.**

50 H.P. Blériot monoplane for sale, complete, with spares, in good flying order.—Box 561, **THE AEROPLANE, 166, Piccadilly, W.**

EMPLOYMENT.

EXPERT motor mechanic of 10 years' experience will give services in return for tuition in flying.—**MILLARD, Engineer, Chesterfield.**

WIRELESS.—Ex-ship's operator (21), postmaster's certificate, requires position; make himself generally useful; also good shorthand typist.—Box 557, e/o **THE AEROPLANE, 166, Piccadilly, W.**

MEN WANTED.—Fitters, woodworkers, erectors, and wire-splacers wanted. Aeroplane experience preferred.—Apply, stating experience and wages required, to the **GRAHAME-WHITE AVIATION CO., LTD., The London Aerodrome, Hendon, N.W.**

KINDLY MENTION "THE AEROPLANE" WHEN

GENTLEMAN, for 2½ years general manager of aviation company, desires position of trust. Public school education, tall and athletic, good appearance and manner, plenty of enthusiasm and initiative, thorough sportsman, likes hard work. Has followed aviation closely last six years. Publicity and organisation a speciality. Considerable literary experience; has written numerous press and magazine articles on aviation. Splendid references.—Box 559, **THE AEROPLANE, 166, Piccadilly, W.**

WORKS manager to an aviation company, who has had considerable experience, desires situation with good firm in a similar though not necessarily the same capacity. Is thoroughly conversant with the theory and practice of aviation and accustomed to handling workmen. Good and commanding appearance. Not afraid of work. Considerable experience with internal combustion engines. Fine organiser, with exceptional references.—Box 560, **THE AEROPLANE, 166, Piccadilly, W.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road. Phone 4770 Wall.**

REMINGTON No. 7 typewriter for sale; new condition; perfect in every respect; cost over £20; sacrifice £5 10s.; approval willingly.—**WHITE, Arcade Chambers, Northampton.**

FOR SALE.—Screw-cutting lathe, 4 in. centres, 3 ft. bed; suitable for amateurs. Various gear-cutting attachments, drilling and turning jigs, etc. Made by the late Ewart Temple Haynes.—Apply, Southcote, Thatcham.

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1 6.

Tea from 6d.

Trade **MENDINE** Mark

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.

MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. DURATION MODEL, size 31 inches by 24 inches, price 5s. Flights of nearly ½-mile can be obtained with this model. We stock everything for models.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham.**

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

Phone: Kingston 669.

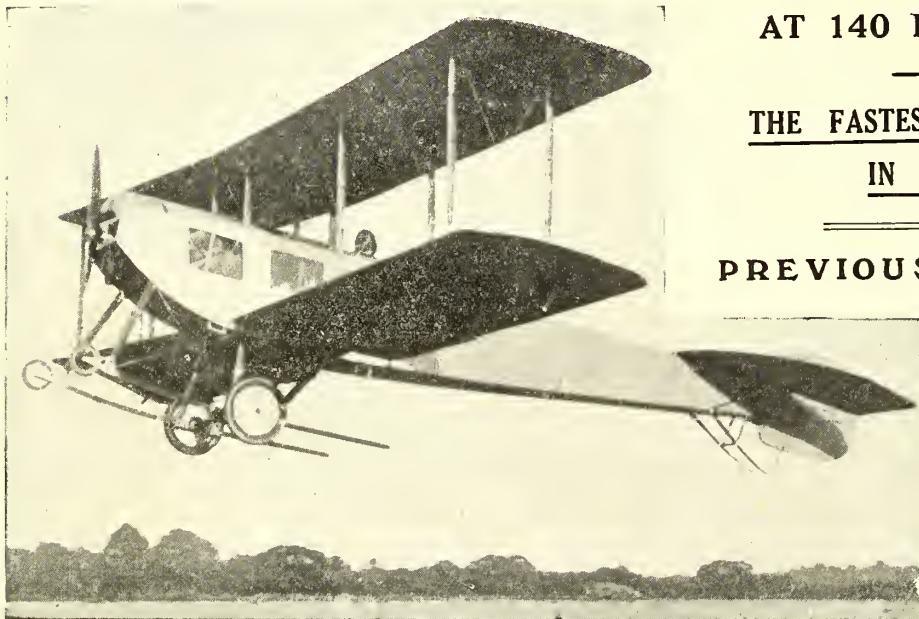
The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our New **Illustrated Models Catalogue** now ready, Contains **Sopwith Tractor, Deperdussin, Blériot, Canard, Clarke Mono, etc.,** all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic rod per doz. yds. CORRESPONDING WITH ADVERTISERS.

THE LATEST SOPWITH SUCCESS:—

WINNING OF THE SCHNEIDER CUP

AT 140 KMS. PER HOUR.

**THE FASTEST HYDRO-AEROPLANE
IN THE WORLD.**



PREVIOUS RECORDS on the preceding type of **SOPWITH BIPLANE** (80 h.p. Gnôme).

British Height Record (Pilot alone) 11,450 ft.

British Height Record (Pilot and 1 Passenger) 12,900 ft.

British Height Record (Pilot and 2 Passengers) .. 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

Telephone:
1777 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

(Contractors to His Majesty's
Admiralty and War Office.)

Telegrams:
"SOPWITH, KINGSTON."

WONDERFUL "LOOPING" AND AIR RACING AT HENDON.

Every Thurs. & Saturday, at 3.0 p.m. till dusk
(weather permitting.)

Special Displays and Passenger Flights,
every Sunday afternoon, till dusk.

TO-DAY

Thur. Ap. 23. 3 p.m., Speed and Altitude Tests.

TO-NIGHT AT 8 p.m.

**Illuminated Night Flying
and Firework Display.**

NEXT SAT. AP. 25. - St. GEORGE'S MEETING.
16 mile Cross-Country Race.

Thur. Ap. 30. Bomb Dropping Competition.

Sat. May 2. SUMMER MEETING.

Sat. May 23. THE AERIAL DERBY.

Passenger Flights daily from £2 2s. 0d.
Admission 6d., Is., 2s. Motors - - 2s 6d.
Children Half-price. (Includes chauffeur.)

London Aerodrome, Hendon, N.W.

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: Phone—Kingsbury 120 (1 line). Wires—"Colplane, Hyde, London."
LONDON: 166 Piccadilly, W. Phone—Mayfair 5955. Wires—"Claudigram, Pic Y, London."



THIS is an illustration of the Cover of the 1914 Fixture List, which contains numerous illustrations of the Flying at Hendon, a complete list of Fixtures and Events for 1914, and particulars of Passenger Flights, Routes to Hendon, Season Tickets, etc. Free on application to London Aerodrome Offices, 166 Piccadilly, London, W.

THE AEROPLANE

Edited by CHAS. G. GREY. ("Aero-Amateur")



VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, APRIL 30, 1914.

No. 18

OUR FIRST INTERNATIONAL VICTORY.



Above, Mr. Howard Pixton is seen flying the Sopwith biplane (100-h.p. monosoupape Gnôme) in the Schneider Cup Race, which resulted in the first victory of a British aeroplane in a big International Race. The photograph is taken from the sea, and shows the machine turning in front of the Tir-au-Pigeons, the pigeon-shooting ground, which is built on arches. Behind is seen the notorious Casino at Monte Carlo.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

Mr. W. Rowland Ding took his pilot's certificate after 3½ hours in the air, 14 days' actual training. During his test flights he reached an altitude of 1,150 feet, gliding down from this height with his engine cut off.

The Beatty method of training is the quickest and most thorough.

Tuition on Handley Page Monoplane & Wright Biplanes

£75.

Special terms to Naval and Military Officers.

(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

The "Bristol" *Flying Schools*

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all newsagents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.				ABROAD.			
	s.	d.			s.	d.	
3 months, post free	1	8	3 months, post free	2	9		
6 " " " "	3	3	6 " " " "	5	6		
12 " " " "	6	6	12 " " " "	11	0		

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

Standardisation in Aeroplanes.

At various times in this paper reference has been made to the standardisation of military aeroplanes, and an endeavour has been made to show that by standardising too soon much injury may be done to the efficiency of the Royal Flying Corps, or at any rate to its effectiveness. No one who has any knowledge of army organisation on active service will deny that standardisation is a necessity; it is purely a question of when and how military aeroplanes are to be standardised.

If standardisation were delayed too long it would mean that we should find ourselves in time of war with a heterogeneous mass of mongrel machines in which each differed from every other so that no part of a damaged machine could be replaced unless a stock of spares for that particular aeroplane were carried with it, and the transport of so many different parts would mean enormous trouble and expense, accompanied by endless mistakes owing to consignments of spares having been sent to the wrong place. The state of affairs would be analogous to that which would arise if different infantry units were armed with different rifles, or with rifles using different ammunition.

On the other hand, if an attempt is made to standardise too soon it means that aeroplane builders will be so busy making the standard type machines that they will have no time and no incentive to produce new and improved types, and so the R.F.C. will find itself equipped with a thoroughly adequate number of machines all of which are hopelessly out of date when compared with the best machines of other countries. Consider for a moment what would have happened if a similar craze for absolute standardisation had seized on the British military authorities when artillery was first introduced. Somewhere about the time of Henry VIII we should have found ourselves excellently supplied with the leather-bound guns first used at Crécy, and by now we might have progressed as far as the Elizabethan culverin—always supposing we had never had a Navy to help progress by trying guns of all sorts of odd sizes and types. Real standardisation in artillery has only come in comparatively recent years—say, from 1830 or so—and it is justified because apparently the gun itself is approaching finality in design, though improved ammunition to fit standard guns may be produced indefinitely. Yet even now complete changes in each type of gun are made from time to time, and, what with siege guns, howitzers, horse-guns, field guns, mountain guns, and so forth—leaving out fortification guns entirely—there is still a pleasing variety, even in the artillery of our Expeditionary Force.

Some months ago, speaking at an Aeronautical Society meeting, Colonel Sykes outlined a general scheme for various types of aeroplanes, corresponding roughly to the various classes of guns, and spoke of standardisation within types. More recently the Aeronautical Inspection Department has issued a most useful document giving the "points" most desired in aeroplanes submitted for test. In these ways one may see how standardisation is to come, but as yet there is no indication as to when it may be expected as a definite rule.

At the moment, proud as we are of our aeroplanes and their wonderful performances, we must not only admit, but must emphasise the fact, that they are about as near finality as were

the leather guns of Crécy. Consequently any attempt to standardise general design must be fatal to progress.

Even the attempt to standardise the mark B.E. type, to the extent that it has succeeded, has done very great harm. Orders given to favoured firms have prevented them from developing their own improved types, partly because they are too busy, and partly because they fear that any attempt to push their own machines may lose them orders for B.E.s. Obviously a constructor, especially one with shareholders and a board of directors behind him, is not likely to go to the War Office and suggest that the B.E. type is bad, and that he can do a great deal better, when the reply he would get would be a cancellation of his B.E. orders, and a request to submit his own wonderful machine to the Royal Aircraft Factory for inspection—for remember that even to-day machines submitted to the Aeronautical Inspection Department for test can be measured and sketched and copied. Incidentally, it will be interesting to see how many of the next batch of R.A.F. "brain waves" bear a resemblance to some of the clever details in the Albatros biplane which has been resting at Farnborough for the last few weeks.

It is well to bear in mind that even the machines with which we have beaten the world for efficiency, such as the various "tabloids" and "scouts," though they show great advance in speed for power, variation of speed, climbing rate, strength for weight, excellence of workmanship, and so forth, do not show progress in other needed directions, and this is because their designers have gone out to beat the Government's "standard" design. Where progress is wanted is in the production of machines which are easier for the ordinary pilot to fly, machines which are more nearly inherently stable, machines which can be landed anywhere and anyhow with the aid of air brakes and improved chassis, whereas the present tendency is all in the direction of producing machines which are only safe for the ultra-skilful pilot. And any attempt at standardisation now is bound to delay the arrival of such improved aeroplanes.

Standardisation to be Desired.

There is, however, one direction in which standardisation is much to be desired, namely, in the standardisation of small parts and fittings which can be used in every type of machine so that without interfering with originality in the general design, any part broken in a minor accident, or worn out in ordinary use, can be replaced from stock without having to send to the maker for special fittings.

Any aeroplane that is wrecked in a bad smash ought in any case to go back to the makers to be rebuilt, and, at least once a year, every military aeroplane should be taken to pieces and overhauled by its maker and not merely given a "spring cleaning" in the squadron workshops, or by the "Aircraft Park." But all ordinary replacements for any machine should be possible from squadron stores.

It seems, on consideration, that the Manufacturers' Committee of the Royal Aero Club, or the Aero Committee of the Society of Motor Manufacturers and Traders—if it ever does anything besides selecting Olympia posters—would do well to call an open meeting of the "Trade" and discuss the fixing of

certain standard sizes for parts, which list of standards could, when settled, be submitted to the Aeronautical Inspection Department for approval.

Standard Parts for Aeroplanes.

Hereafter I venture to submit certain points for discussion at such a meeting, should it ever take place. I gather that some of them have already been considered by a committee of some sort somewhere, but as no report has been issued I take it most of the points raised will afford a basis for fresh argument.

First of all, it seems that all sizes of wires and cables could be standardised down to about four sizes of each, or even to three. No designer need use more than one size of bracing cable for one type of machine. All main flying load cables should be in duplicate, and a single cable of the same size should suffice for the standing load cables (those from the inner top to the outer bottom corner of each cellule in a biplane, or for the overhead cables in a monoplane). Designers who go in for ultra-refinements, such as using different sizes for the different loads in each cellule, must sacrifice something to standardisation. Cables of the same size in triplicate might be used for the flying load wires of the innermost bay of really big machines. Probably three in line would offer no more head resistance than one large fat one of the same strength. There is less chance of six joints giving way than of two, and the chief danger in cables is defective joints.

Similarly, piano wire for use in chassis and fuselages can be reduced to two or three standard sizes, though a smaller size must be admitted for bracing on rudders, elevators, and ailerons, unless it is made a rule that all these members must be built on steel frames and be self-supporting.

With standardised cables come standardised wire strainers, or turnbuckles, which is a better name. The type specified by the Royal Aircraft Factory are probably the best in the world. They were invented by Mr. Short, who patented them and draws a royalty from the R.A.F. These could be reduced to four sizes at most in machines up to 120 h.p. Beyond that size it is impossible to foresee at present what may be needed.

All control cables should be of the same size, and the pulleys round which these cables pass should be of an ample standard size. Many such pulleys at present are dangerously small. Piano wire controls should not be permitted.

All bolts can be reduced to four standard diameters and a standard thread should be adopted throughout. In this way, though bolts of special length may be needed, the nuts, which are the most likely to need replacing, are sure to be in stock, and bolts can easily be cut to length and rethreaded. With these, split-pins and spring washers would also be standardised.

Assuming that military aeroplanes are to be of three general types, light, medium, and heavy, it should be possible to get all wheels down to three standard sizes. This would mean that tyres, rims, spokes and nipples, hubs, and axle diameters would all come down to three sizes. Of course, a designer making a "heavy" machine with four wheels instead of two might use "light" wheels, but that would not cause any complication. It might, however, be necessary to have six sizes, so as to have a large and a small wheel in each class, to accommodate absolutely different chassis, as, for example, the Blériot and Avro. Still, six should be ample, and five might do.

It might also be possible to standardise about four or five sections of steel tube for interplane struts, for it would be no particular hardship if the Army insisted on certain standards in this respect.

Standardisation in Engines.

When it comes to engines it is a trifle harder to standardise, but even here a good deal can be done. Sparking-plugs, which sixteen or seventeen years ago were all sorts of odd sizes and threads, are now practically standardised, and an engine designer makes his plug-hole to standard size and sees that a standard plug can be got in and out, without excrescences getting in the way of spanners.

Incidentally, let me warn those who have to do with R.F.C. engines that they are going to have trouble if they try to use present plugs in the high-speed high-compression engines which are likely to be used in the future. Plugs which do

admirably in a low-compression Gnome are useless in high-compression engines. Recently I put a set of plugs designed for Gnomes into a car engine and they leak like sieves round the porcelains.

However, if designers can design engines to take standard plugs they can reasonably be expected to design to take standard nuts. Here, again, three or four sizes should be sufficient.

Further, all fittings for the joints of petrol, oil, and water pipes should be standardised. The same sized pipes can be used, practically irrespective of the size of engine. Connections of odd sizes which have been "faked" or packed up to fit are a continual source of danger.

Propeller-bosses and engine noses should be standardised, as to size, taper, size of flange, position and number of bolt-holes, and size of bolts, for various standard powers, and types of engine. For instance, any propeller boss off a 100-h.p. Green engine should fit an Austro-Daimler, or A.B.C., or Mercédès of approximately the same power.

In engines of similar power and type the position, distance apart, and size of the holes for the holding-down bolts should be standardised. That is to say, a Green, A.-D., A.B.C., Argyll, or Mercédès of anything between a nominal 100 h.p. and an actual 150 h.p. should fit the same engine-bearers. Similarly, radial engines, whether rotary or not, such as the Gnome, le Rhone, Clergèt, Isaacson, Anzani, the smaller Salmsons, and so forth, should fit the same back-plate.

An excellent suggestion was made by Mr. W. H. Sayers, with whom I have discussed this subject at some length. His idea is that the present style of engine-bearer should be abolished and that engines should be made to fit a standard steel housing, similar to that in the Gnome; such a fitting would come at each end of the "longitudinal" engines, and possibly in the middle as well. The reason for this is that the design of the outside of the housing could be altered to fit various fuselages, as a Gnome housing is altered to-day, yet all standard engines would fit it. The housing itself would act as cross bracing for the fuselage, whereas with many existing engines it is practically impossible to get cross bracing past the engine-bearers, crank-case, or oil sump, for there is nearly always something in the way.

Holding-down bolts, or housing-bolts, should be standardised, and one size of nut and thread should suffice for all up to about 200 h.p., for more bolts can be used in the bigger sizes instead of bigger bolts.

Then there is the very important matter of control gears. In engine controls, every lever should be arranged in the same place in relation to the pilot for every engine, and all levers should operate on the same rule, "Full forward, full open and go ahead. Full back, full shut and stop." There should be no up and down or thwart-wise levers which would be likely to cause a pilot to make a mistake at a critical moment.

Similarly, all the aeroplane control gear should be standardised. "Stick" control is popular with some pilots, but it is useless on a big, heavy machine. Still, central lever controls might be standardised up to about 80-h.p. machines. Beyond that, wheel control is necessary, and should be insisted upon. The best pilots who have had most experience of many types prefer wheel control for all sizes.

There are doubtless many other things which might be standardised, and will suggest themselves to people who are better acquainted with aeroplane and engine design than I am, but if even the suggestions offered above were adopted it would be found that a very great saving in the number of small spares could be effected, and yet designers could play about indefinitely inside their ring fence of standard sizes and dimensions.

If any designer has any grave fault to find with the scheme, which is fairly certain to be adopted sooner or later, now is his time to ventilate his objections, because in a month or two it may be too late, and a whole series of impossible standards may have been fixed by the War Office or the Admiralty. The pages of this paper are always open to its critics, and objectors—or otherwise—may rely on their names being kept out of print if they wish it.

Squadron Standardisation.

Apart altogether from standardising all service aeroplanes, much may be done by standardising squadron equipment.

THE SCHNEIDER CUP RACE WAS WON ON A SOPWITH BIPLANE

Piloted by MR. C. HOWARD PIXTON.



The Sopwith Biplane starting in the Schneider Cup Race

Maximum Speed over 10 kms.
(Closed circuit with four corners)

92.1

miles per hour
(**148.3** kms. per hour).

Total Distance of Race
150 sea miles (172 miles) in
2 hrs. 13 secs.

300 KILOMETRE SEAPLANE RECORD 2 hours, 9 mins., 10 secs.

The Sopwith proved itself to be the fastest seaplane in the world.

THE SPEED-RANGE OF THE LATEST SOPWITH SCOUT was
timed officially at Farnborough as from 94.9 to 39.6 miles per hour.

**PREVIOUS
RECORDS** on
the preceding type
of **SOPWITH
BIPLANE** (80 h.p.
Gnome).

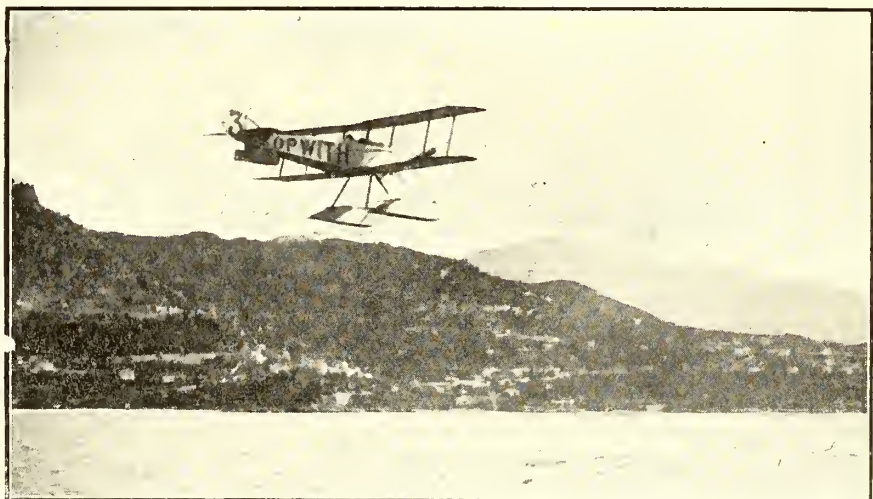
British Height Record
(Pilot alone) 11,450 ft.

British Height Record
(Pilot and 1 Passenger)
12,900 ft.

British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.

WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.

ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.



The Sopwith Biplane flying in the Schneider Cup Race

THE SOPWITH AVIATION CO.

(CONTRACTORS TO HIS MAJESTY'S ADMIRALTY AND WAR OFFICE)

Offices and Works: **KINGSTON-ON-THAMES.**

Telephone: 1777 Kingston.

Telegrams: "Sopwith, Kingston."

Where one has Farmans, Blériots, Sopwiths, and B.E.s, all mixed up in one squadron, it is hopeless to try and organise stores or transport on an efficient system, but with each squadron mounted on one type of machine everything can be done as it should be. Of course, there are objections. The "Scout" squadron would be unbearably cocky about their flying, and the "mechanical cow" squadron would have their legs mercilessly pulled by the rest, but it would be no worse than the cockiness and "down-troddenness" of existing regiments, which each have their respective merits. No one swaggers about the A.S.C., but the Army would be badly off without it.

Also, there is the possible objection that a squadron, all on one make, might become too much attached to that make, and so the "Trade"—abhorred of the "Times" aeronautical expert—might be suspected of having too much influence. Personally I fail to see why influence won by the excellence of a machine should be more objectionable than influence gained by being a friend of some female relation of "someone at the War Office," or than having served in the same regiment as one or other of those in a position to direct the placing of orders. Still, there

is the blasting touch of mere commerce in the first case, and I suppose that is what does it.

However, doubtless in due time we shall see standardisation in squadrons, and afterwards (very long afterwards, I hope) standardisation in types.

It will be a sad day for aviation when aeroplanes and engines are standardised to the same extent that guns are standardised to-day, for it will mean that we are approaching finality in design, and that the whole game of designing, constructing and flying aeroplanes will be about as interesting as running a motor "bus business. Personally I do not think we shall see it for some time, unless someone of extraordinary stupidity and strength arises at the War Office, for, short-sighted as I am, I can see the various successive developments in aeroplane design which will, at the present rate of progress, take another fifteen or twenty years to work out, and, if the business is forced into the hands of big firms who care only for Government orders, they will take longer, but I believe the best brains in the Army really wish to see progress made, so the prospects are not so bad as they might be.—C. G. G.

The Aeronautical Society.

Official Notices.—1. Elections: Assoc. Member—Alfred Curtis. Foreign Members: Prof. J. G. Rodger and Th. D. Rodger.

2. Council.—Mr. Archibald R. Low has been co-opted to fill the vacancy on the Council caused by the retirement of Mr. J. W. Dunne therefrom.

3. Meeting.—The twelfth meeting of the present Session will be held on Wednesday, May 6th, at 8.30 p.m., when Dr. A. P. Thurston will read a paper on "The Measurement of Air Speed," Mr. H. Darwin, F.R.S., in the chair.—B. G. COOPER,

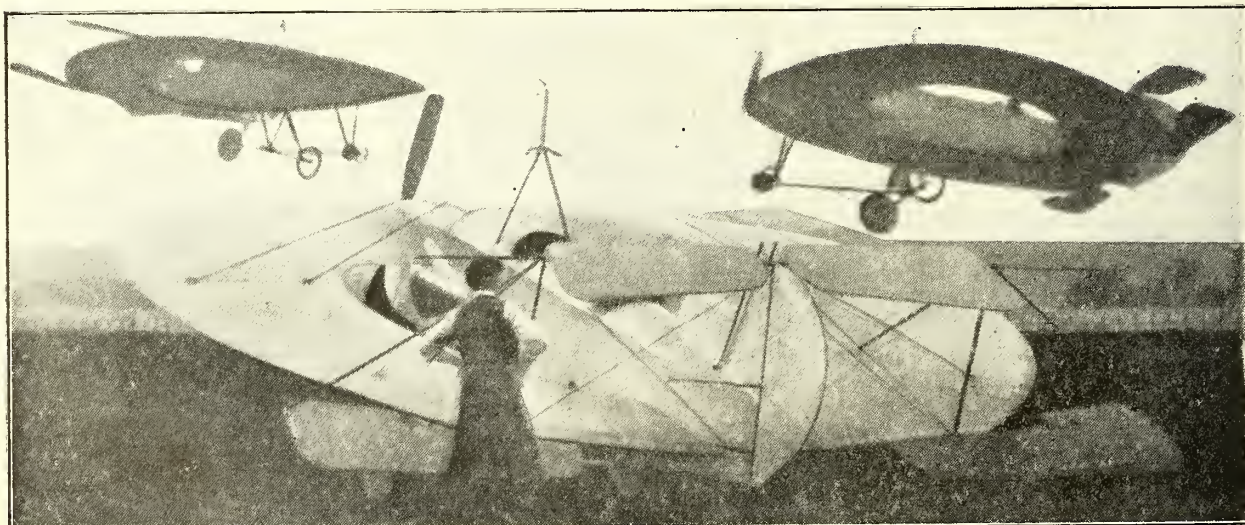
The Daily Press and Aviation.

The "Daily Mail" is to be congratulated on discovering, the day after *THE AEROPLANE* had pointed out the importance of the Sopwith win at Monaco, that a French paper some days previously had given considerable more attention to the British victory than any British paper.

However, the "Mail" can make discoveries for itself at times, as witness the following from its "own correspondent" in Paris on Friday last:—"A squadrilla of steel-protected aeroplanes is now ready at the great army air factory and testing station at Chalais Meudon, near Paris. They are two-seater monoplanes of which the vital parts are protected with steel plating, $2\frac{1}{2}$ inches thick, impenetrable to rifle bullets at a distance of 750 yards. They have 95-h.p. engines and an estimated speed of over 62 miles an hour."

At a moderate estimate it would take 60 square feet of sheeting to protect the engine, tanks, pilot and passenger, and a sheet of steel 60 square feet by $2\frac{1}{2}$ inches would be equal to about 12 cubic feet, so that it would weigh approximately 5,500 lbs., truly a goodly load for a 95-h.p. engine to transport at 62 m.p.h. Perhaps the "Mail" will give us some particulars as to the wing section of these remarkable machines. Incidentally, the "great army air factory" of Chalais Meudon has produced singularly little of any value for the French air service, and is about as popular as is the Royal Aircraft Factory at Farnborough, whose products the "Mail" is so fond of booming. The "Mail" evidently has an affection for Government factories.

One may mention that the "Daily Mail" might do well to engage the services of someone with a knowledge of aviation, whom it would, of course, label its "airmanship expert." Such an one, if he read *THE AEROPLANE*, would have noticed that doubts were cast on the suitability of the Avro and Blériot float arrangements for rough water, for it was suggested in this paper at the time of the Paris Show and of the Olympia Show that though they might be sufficient for calm water they did not inspire confidence for sea work. Curiously enough both M. Salmet's machines lost their floats soon after they were tried on the sea. The "Mail" might have saved itself time and money by following up that suggestion.



The Cedric Lee aeroplane, which, on account of the amusing way it is guarded, is called by the lay Press "the secret circle-plane." It is here seen in the air piloted by Mr. Gordon Bell, who was somewhat seriously injured by its spiralling from 100 feet or so. A Shoreham correspondent writes, "Mr. Bell has lately been attempting to bank the ...machine a little."

THE SCHNEIDER CUP RACE

RESULT

1ST—PIXTON ON SOPWITH BIPLANE

100-H.P. MONOSOUPE Gnome MOTOR

Beating all Speed Records for
Hydro-Aeroplanes up to 300 Kms.

2ND—BURRI ON F.B.A. FLYING BOAT

100-H.P. MONOSOUPE Gnome MOTOR

For Particulars concerning the new Monosoupe Gnome
APPLY TO THE

GNOME ENGINE COMPANY.

(SOCIÉTÉ DES MOTEURS GNÔME.)

To whom all applications for Gnome
engines and spare parts should be made
for
Great Britain and the Oversea Dominions.

THE GNÔME ENGINE COMPANY,
47, VICTORIA STREET, WESTMINSTER, S.W.

Local Training.

BY W. E. de B. WHITTAKER.

Some years ago, tired of inaction and feeling that there was good cause, those interested in aviation clamoured for the formation of a flying corps in the Naval and Military services of the King. The pretext, and in some cases the reason, for this agitation was that of national defence. Other nations had aircraft and highly trained pilots ready for use in times of war, and yet England had nothing. And England might have continued in this state had not the financial needs of the new industry asserted themselves. It is always so. Should perchance war cease to be an international amusement, the rifle manufacturers would be seriously annoyed, and would very possibly sign innumerable petitions to Parliament. It is well that it should be so. There must be, for a nation's good, some moving spirit, some constant energy. With France it is patriotism, with us commerce, and the results are much the same. Further, it gives those who write the opportunity of a cheap sneer.

One class which supported the demand for a flying corps was that composed of men desirous of adopting aviation as a profession, but unable from lack of means to acquire the necessary training. They thought, and thought wrongly, that their enthusiasm would obtain for them recognition and a commission in the Army or Navy. Then would come illimitable flying at the expense of another and with the minimum of real work. But in the result this was not the case. Most of those in the Military and Naval Wings of the R.F.C. are soldiers and sailors, and those few civilians who have been accepted take part in the work as well as the play. Above all, the R.F.C. has not assisted the large class of people who would like to become pilots but cannot do so because of the lack of money.

Again, those of small means who have managed to struggle into aviation (I exclude those who began as mechanics or who have female relations who are intimate friends of aviators) have in the majority of cases been fortunate enough to have been living close to one of the great aerodromes, all of which are in the South. Thus the greatest expense, that of living, has been greatly reduced. Men of a similar type living away from an aerodrome—such as is the case all over the North of England—are unable to learn to fly.

Many men would become aviators if it was possible for them to do so without giving up their ordinary trade or profession—if they could practice in the mornings and evenings within a few miles of the town in

which they work. Aviation is none too sure in its rewards that men of moderate means can afford to give up the certain prosperity of selling flour or promoting companies for the doubtful prospects of an aviator's life. Also, none can tell in advance whether he is likely to fly with any skill. A risk must be taken, and it is not all who can afford to do so.

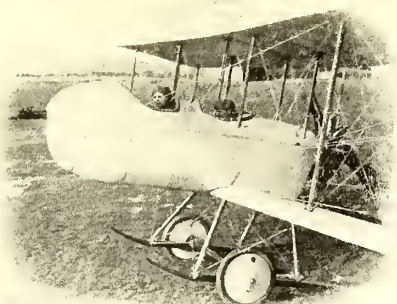
But so far as the Army or Navy is concerned there is another point of view. Many men desire a commission in the Service that they may get as much flying as they require at Government expense. They resent the necessity of working when they enter the R.F.C. The lengthy training period seems to them absurd and uncalled for. They have been proclaimed "heroes" by a Secretary of State, and everybody knows that heroes never work! It is clear that this is not the really desirable type of man to have as an officer in a flying corps. There is no particular shame in being an aviator and in being fond of flying, but there is considerable shame in flying if every responsibility in life is thereby evaded. The military aviator for some time to come must be a soldier as well as a pilot. He must work as well as wear a uniform.

From time to time efforts are made to induce the Government to give facilities for aviation training at different centres throughout the country in such manner that all who desire to fly may do so at the Government expense. The question of any return being due to the Government for such philanthropy is always carefully shelved.

Recently, that is to say, during the early part of last year, a model aeroplane club in the suburbs of Liverpool conceived the idea of learning to fly at low expense. With this in the minds of the club executive they made inquiries in Liverpool as to who would make them a present of two aeroplanes that they might form a flying section (local) of the Royal Flying Corps should the War Office be willing. Those to whom it was taken realised how big a scheme this might be made. Consequently, it was boomed loudly in the local Press, and the originators were quickly shelved. A firm of brewers, bearing the name of a late local temperance advocate, undertook to present two aeroplanes to the suggested corps. The idea grew, and a public meeting was called, at which representatives of the War Office were present. Those who were responsible for the local arrangements carried it much further than was the original idea and suggested pre-



The second Sopwith Tabloid for the Army, flying at top speed, and landing, at Brooklands, piloted by Mr. Pixton on Sunday last. The speed range of the first of the type to be delivered was from 94.9 to 39.4 miles per hour.



LEARN TO FLY

at the

VICKERS FLYING SCHOOL

BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

VICKERS LIMITED,

Aviation Department, Vickers House,
Broadway, Westminster, S.W.



THE BRITISH CAUDRON COMPANY, LTD.

(Late the W. H. EWEN AVIATION Co., Ltd.)

British built **CAUDRON** monoplanes, biplanes, hydro-aeroplanes (combined wheels and floats.)

The Flying School, which is one of the most successful in this or any country, will be carried on as usual at The London Aerodrome, Hendon.

THE WORLD'S DURATION RECORD was raised to 16 hours, 28min., 56 secs. by M. Poulet on a **CAUDRON Biplane** on April 26.

Telephone: 50 Kingsbury.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS
for the building of

HENRY & MAURICE FARMAN

Aeroplanes

AND

Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.

senting an aeroplane squadron to the Army, but with the fatal proviso that this squadron should be stationed permanently at Liverpool. This the War Office would not accept, and the scheme fell through.

There are certain axioms in relation to such matters as this that are practically incontrovertible. No presents should be made to the Government, as responsibility should not be shared and weakened. Should, in spite of this, presents be accepted by the Government, there should be no limiting clause in connection with them. For strategic reasons the War Office must have complete and undivided control of the training, stations and movements of all units in the Army. A little reflection will show why this is necessary. A squadron permanently stationed (except in times of war or in manœuvres) in a position of no strategic value would be practically useless to the country. It would stagnate, and its efficiency would deteriorate to a surprising degree.

No specialist corps can rely on local enlistment for maintenance. Men who require exceptional qualifications or elaborate training must be selected from an intelligent class but thinly distributed throughout the country. An aviator does not need intelligence of a high order, but, for reasons mentioned above, he is not of—may one say—local origin as a pilot.

If one assumes that such a scheme as that propounded in Liverpool came into being, there are certain inevitable points to be considered. The suggestion was that an entire squadron should be fitted out and presented to the War Office, who would undertake that the squadron should not be removed. This, as will be seen, is a very one-sided arrangement. The formation of a squadron of the R.F.C. complete with aeroplanes and transport costs roughly about £40,000. It would, no doubt, be possible for many a city in the United Kingdom to find such a sum of money with which to found an aeroplane squadron. To the uninitiated this might seem a very liberal gift. So indeed it would be were it not for the conditions to be imposed. The squadron was to have the name "Liverpool" in its title, an easy and quite possible provision. It was to be stationed permanently near the town of its origin, and was to be mainly recruited from citizens of Liverpool. If such a condition could possibly be admitted, then it would at least follow that the City of Liverpool should maintain that squadron during the period of its presence at Liverpool. The city would thus be expected to undertake all replacements of material and personnel. If not, then they could impose no conditions, as none could expect the War Office to be bound down for all futurity because of an original gift. As to personnel, the difficulty is still greater. No doubt the attraction of learning to fly for nothing would attract a certain number of Liverpool young men. There would, no doubt, be temporary enthusiasm for aviation. But in this world everything fades away some time, and one cannot hope that there would be a continuous stream of recruits. And then what would happen? amusement. On the other hand, service in a Territorial years drift by? There would be a serious block in promotion. If the squadron was partly out of the con-

trol of the War Office then one could not expect that authority to permit officers from such a squadron to be posted to another squadron of the R.F.C. This would mean a wastage of officers.

Though those concerned in the Liverpool scheme never made up their minds as to what definite form the proposed gift squadron should take, it would seem as though they intended it to be comparable with a unit of the Regular Forces. Mr. Melly, the Liverpool aviator, who has given so much time and money in the endeavour to encourage the cause of aviation in Lancashire and from no motive of ultimate gain to himself, propounded a scheme of training and of forming the suggested squadron. This was, I understand, submitted to members of the local committee, who, weary from their daily labours, gave it little or no attention. I have seen this scheme, and though I am not in agreement with it, one must confess that it held great possibilities if carried out in detail and strictly adhered to. He also thought that a squadron might be permanently stationed near his native town, though in his scheme it took the form of a sort of territorial unit with a stiffening of one or two regular officers and a number of N.C.O.s. The backbone of the scheme was similar to that of the model club which originated the whole idea, and was that men otherwise occupied during the day, and not possessed of large means, should be able to obtain tuition in flying for nothing in the mornings and the evenings. In return they were to join the local squadron for a certain period of time, refunding the £72 tuition fee if they retired without adequate cause before that time was up. A local committee provided the initial cost of tuition, recouping themselves out of the capitation grants of £72 which were to be made by the Government. The aeroplanes on which the local squadron flew would be provided by private generosity or public subscription.

The scheme, rough though it was, had much to recommend it, and also much to damn it. The return made by the pupil for his tuition is hardly high enough. If he is trained at public expense, then he must make some greater return than by merely serving in a flying squadron for a period of time. There is one way out, and that is, that the pupil on becoming a pilot should serve for one year in the Territorial battalion of some line regiment. It must not be forgotten that the majority of men learn to fly because they want to fly, and service in a flying squadron would merely be a cheap way of obtaining further amusement. On the other hand, service in a Territorial unit (line, for preference) would be some sort of adequate return. It would be in the nature of work.

No one town could form such a Territorial squadron and work it satisfactorily unless other towns and counties followed the same lead. In any case, no town could undertake the maintenance in perpetuity of even a single squadron. It could not be borne on the rates, and public subscriptions are unreliable.

No aeroplanes ought to be accepted by any Government or municipality from any business house at all, owing to the use of such gifts in advertising schemes.

(To be continued.)

South Coast Flying.

Eastbourne, Brighton, Shoreham, Worthing and Horsham have all seen a good deal of flying this week, for aviators have taken advantage of good weather.

At the Shoreham Aerodrome, Lieut. Humphreys, R.F.C., left on Monday for Farnborough on a Maurice Farman.

Wednesday was the busiest day in the week. Mr. F. B. Fowler flew over to Brighton from Eastbourne in the morning with a passenger on an 80-h.p. Gnome Henri Farman waterplane, alighting by the West Pier. Excellent business was done in the afternoon with passengers till nearly dark, and even then Mr. Fowler had to refuse many applicants.

Mr. Cecil Pashley, accompanied by Mr. B. F. Hale, left Shoreham with the intention of flying to Eastbourne, but, owing to slight engine trouble, he descended on the Bruns-

wick Lawns when passing along the Brighton front. He found difficulty in getting off owing to grass catching his wheels, but finally got off and reached Shoreham. In the evening Mr. Fowler left in the dusk for Eastbourne.

Mr. W. H. Elliott, of the Shoreham Flying School, left the same afternoon for Horsham, accompanied by Mr. B. H. England, on the Farman type biplane. He had a most successful journey and returned on Thursday morning at nearly 3,000 ft. Lieut. Lewis, R.F.C., arrived from Farnborough the same afternoon, and left again on a Maurice Farman.

The Cedric Lee "Doughnut" has been out frequently, Mr. Gordon Bell piloting. The firm seeks no publicity, and they hurry the machine in and out of the shed most amusingly.

On Friday morning Mr. C. L. Pashley flew to Worthing with Mr. B. F. Hale just after dawn.—E. L. D.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," Tuesday April 21st:—

Admiralty, April 17th.—Royal Naval Reserve.—The following Sub-Lieuts. have this day been promoted to the rank of Lieut.: R. L. G. Marix and H. A. Littleton.

War Office, April 21st.—Regular Forces.—Establishments.—Royal Flying Corps, Military Wing.—The date of appointment of Sec. Lieut. G. de Havilland to the Reserve is antedated to Nov. 24th, 1912; Sec. Lieut. N. C. Spratt, S.R., is appointed to the Reserve (March 25th).

From the "London Gazette," Friday, April 24th:—

War Office, April 24th.—Regular Forces.—Establishments.—Royal Flying Corps, Military Wing.—Capt. F. St. G. Tucker, Worcester Reg., from a Flying Officer, is appointed to the Reserve (April 13th).

NAVAL.

Admiralty appointments, April 24th:—

Sub-Lieutenant G. R. Bromet, to the "Pembroke," additional, for course at the Central Flying School, to date May 12th.

Eng.-Lieut. H. M. Cave-Browne-Cave, to the "Pembroke," additional, for Isle of Grain Naval Air Station, to date April 23rd.

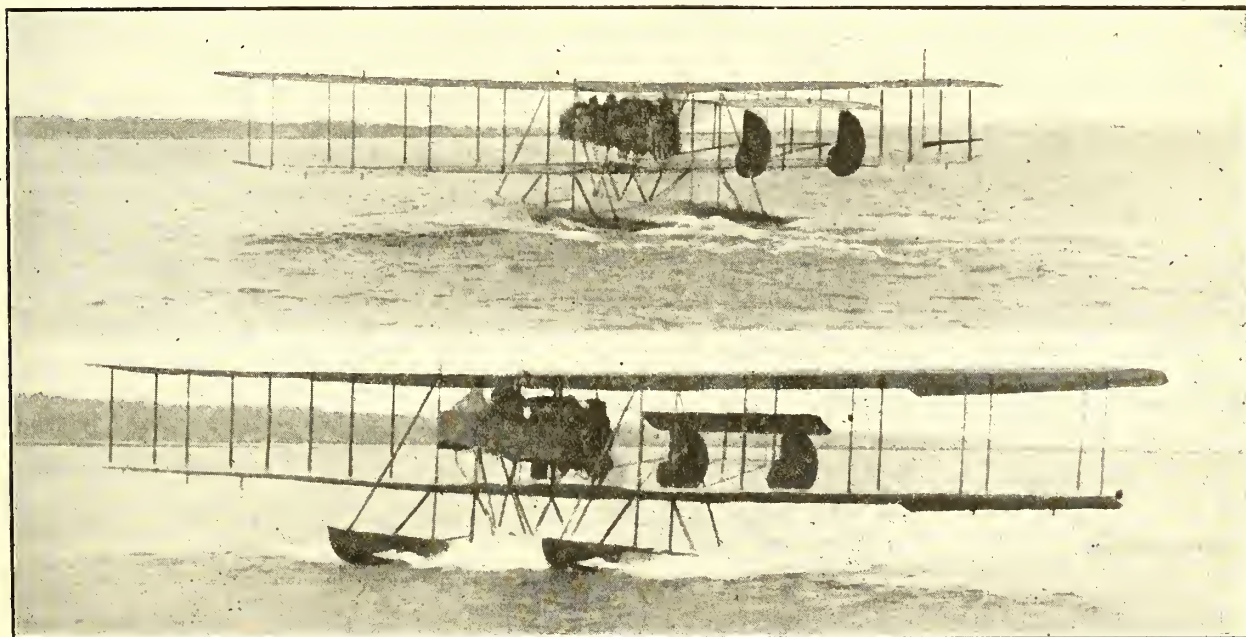
Royal Naval Reserve.—The undermentioned have been appointed to the "Pembroke," additional, as probationary sub-lieutenants, R.N.R., for course of instruction at the Central Flying School: F. M. L. Barr, H. G. Wanklyn, L. Boddington Hay, J. M. Rush Cripps, and B. F. Bainsmith, all to date May 12th.

On Friday last the Wight seaplane (200-h.p. Salmson) was taken out in a very strong and gusty north wind by Mr. E. C. Gordon England to test the new control, a wheel having been fitted instead of a lever. The machine flew excellently, and the new drive for the wireless operated quite successfully. Afterwards, Lieut. Longmore, R.N., commanding Calshot Air Station, took the machine out in a still worse wind and flew up Southampton Water among the various craft moored there. This machine has now been definitely taken over by the Navy, and the second of the type will probably have been delivered by now.

At Eastchurch on Monday, April 20th, Sopwith No. 27 (80-h.p. Gnome), Caudron No. 40 (50-h.p. Gnome), B.E. No. 50, Blériot No. 39 (80-h.p. Le Rhone), Avro No. 16 (100-h.p. Gnome), and Shorts Nos. 3 and 65 (80-h.p. Gnomses) were out, the latter (Short 65) across country. The next day the Short gun-carrying machine No. 66 (80-h.p. Gnome) was out, and Comdr. Samson, R.N. (B.E. No. 50), Eng.-Lieut. Briggs, R.N. (Blériot No. 39), Lieut. Osmond, R.N. (Caudron No. 40), Lieut. Littleton, R.N.R. (Sopwith No. 27), Sub-Lieut. Peirse, R.N.R. (Avro No. 16), Sub-Lieut. Rainey, R.N.R. (Short No. 3), and Pte. Edmunds, R.M.L.I. (Short No. 34), all flew to Dover and flew over the Royal yacht and returned. On Wednesday, Short No. 2 (50-h.p. Gnome) flew to Grain and back, and Shorts Nos. 10 (140-h.p. Gnome) and 66 (80-h.p. Gnome) were out. Scouting flights were made by Lieut. Littleton, R.N.R. (Sopwith No. 27), Asst.-Paymaster Finch Noyes (Avro No. 16), and Pte. Edmunds (Short 34). On Thursday, Major Gerrard, R.M.L.I., and Lieut. Babbington, R.N., arrived from the Central Flying School on two B.E.s, and Lieut. Osmond, R.N. (Short No. 65), Asst.-Paymaster Finch-Noyes (Short No. 3), Sub-Lt. Rainey, R.N.R. (Sopwith No. 27), Sub-Lieut. Peirse (Avro No. 16), Pte. Edmunds, R.M.L.I. (Short No. 34), were scouting. Blériot No. 39, Short No. 10, and Sopwith No. 104 were also out. On Friday, Comdr. Samson (Short No. 10), Eng.-Lieut. Briggs (Blériot No. 39), Lieut. Osmond (B.E.49), Sub-Lieut. Young, R.N.R. (Short No. 3), Lieut. Vernon, R.N. (Short No. 65), Sub-Lt. Rainey (Sopwith No. 27), Lieut. Marix, R.N.R. (Sopwith No. 104), P.O. Andrews (Sopwith No. 27), and Pte. Edmunds (Short No. 2), were out.

On Saturday, Major Gerrard and Lieut. Babbington returned to the Central Flying School on their B.E.s, and Sub-Lieut. Rainey flew to Southampton on Sopwith No. 27 with a passenger. Shorts Nos. 2, 3, and 10, and Blériot No. 39, were also flying.

Mr. Churchill, who was alleged by the Press to have been in a "seaplane accident" on Friday off Clacton during his trip from Isle of Grain to Harwich to inspect the Naval Air Station at Felixstowe, returned to Sheerness on Friday evening on a destroyer. As a matter of fact, the "accident" was merely a case of engine failure. Owing to the high wind on Satur-



The Navy's first Wight seaplane (200-h.p. Salmson), piloted by Mr. Gordon England, doing its tests on Southampton Water. The small amount of wash from the floats should be noted. Its maximum speed was 78 m.p.h., and its climb was 3,000 feet in 7½ mins., the total weight being 3,500 lbs., of which nearly 1,000 lbs. was useful load.

"Beautifully smooth running, thereby adding to general comfort, in addition to saving engine power."—AEROPLANE.

PALMER CORD TYRES

fitted to your car will give you greater speed, greater comfort and greater safety, with reduced petrol consumption.

In the Palmer Cord Tyre Book you will find proof of the above. May we send you a copy?

Will you write for it to-day?

THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).

"PERRY-BEADLE"

BRITISH BUILT
**FLYING BOATS
AND
AEROPLANES.**

~~~~~  
Every class of Aeronautical constructional work carried out. Send us your enquiries for work to be executed to your own ideas. Our staff of highly trained and technical designers :: :: is at your disposal :: ::  
~~~~~

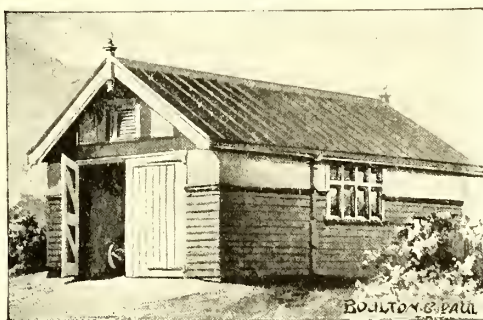
Offices and Works:

GOULD ROAD, TWICKENHAM.

Telephone—RICHMOND 1109.

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

**PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR
HOUSES, CYCLE HOUSES.**

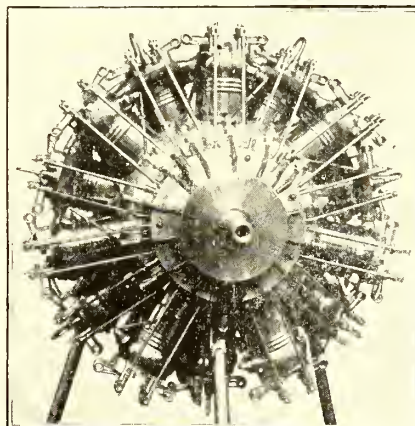
GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

SALMSON AERO-ENGINES SYSTEM CANTON - UNNE.



Phone No.:
7 Stroud.

Tele. Address:
Humpidge,
Cainscross.

**The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.**

*Who are the sole concessionaires for these engines for the
British Empire.*

London Office:—87, Victoria Street, S.W.

Phone No.: 7026 Victoria. Tele. Address: "Aeroflight Vic London."

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Montrose. Only the Maurice Farman 214 was out next day, piloted by Capt. Dowes and N.C.O.s.

Thursday was rough and stormy and no machines were out, but Capt. Waldron returned from Berwick on B.E.225 after repairs. Various flights were made next day in a gusty wind, Lieut. Dawes going to Dundee, the others being local flights. Lieut. Harvey Kelly, with A.M. Smith as passenger on B.E.276, was flying over a field within a short distance of the aerodrome when the engine failed, and they made a landing in a rough place. A strong gust of wind caught the machine and it was toppled over on its back, smashing the top planes. The pilot and mechanic were unhurt. Lieut. Empson, on B.E.331, arrived from Farnborough about 7 p.m. He made a landing near Granton for petrol about 4 o'clock and left about an hour later. No flying was done on Saturday.

Mobilisation practice with motor-lorries has been going on in Squadron 2 during the past week and some smart work has been done. A flight had a run to Brechin on Friday. Capt. Longcroft took out B flight on a mobilisation practice on Saturday, the conditions being again very fine and the roads fearfully dusty.

Six mechanics of Squadron 2 left Montrose on Monday for Farnborough to undergo a fortnight's course in Austro-Daimler engines previous to the transference of a few R.E. machines to this aerodrome.

The recently formed No. 6 Squadron is now actively engaged at Farnborough, the pilots of one flight being busy in practice work. Last Saturday, Capt. Pictou Warlow flew B.E.234 in three flights, carrying Capt. Jones, Sergt. Little, and A.M. Donevan as passengers. The flights were mostly at 2,000 ft. and extended about 20 mins. each. The same officer was out on Monday in B.E.234 for two flights at 2,000 ft. Lieut. Lawrence made five flights of about 10 mins. each on the same day in B.E.239, at heights varying from 3,000 to 2,000 ft., carrying as passengers Capt. Stracy, Lieut. Harvey, and A.M. Downer. Major Burke, of No. 2 Squadron, visited the squadron on Friday, 24th, and was taken for a flight by Major Becke in R.E.1 at a height of 3,000 ft. for 30 mins. The other flights are busy with Maurice Farman machines.

FRANCE.

The Dijon escadrille of six Henri Farmans left Dijon on April 20th for Belfort. They will return to Dijon about the end of July, when the permanent equipment of the military aerodrome there is completed.

The French military airship "Eugène-Montgolfier," stationed at Issy-les-Moulineaux, made two training cruises on April 20th with 10 and 11 passengers respectively.

On April 21st, Lieut. d'Abrantes flew to Neufchâteau from Etampes, and Quartermaster Quennehen arrived from Epinal via Mailly.

Some very fine flying was done at the spring review at Vincennes which King George and Queen Mary attended. Under the direction of Commandant Barrés, who was accompanied by Col. Carron as passenger, the Farman escadrille, which included Lieut. Challes and his mechanic, Capt. Van Duick, Lieut. Noé, Capt. Mauger-Desvarenes, each with a mechanic, Lieut. Vitrat with Lieut. Lauchiron as passenger, flew above the troops.

The dirigible "Montgolfier" (Clément-Bayard VI) also took part in the exercises. During the whole of the Royal visit she flew around, much to the delight of the assembled crowd.

On April 22nd, Lieut. Lamoret and his mechanic, Sapper Filtan, who were flying from Maubeuge via Dunkirk to Calais, met with an accident. After flying from Maubeuge to the coast, a distance of 180 kms. in an hour, they got lost in a fog and tried to land at Adinkerque, in Belgium. They rolled into a ditch, turned their machine over, and received minor injuries. The machine was dismantled for return by train.

Capt. Faure, who recently landed in Germany, and who returned to France, has been put under disciplinary punishment for an error of judgment.

On April 23rd, M. Bill delivered three Farman biplanes (80-h.p. Clerget-Blin engines) to the French army in the presence of Capt. Destouches.

On April 25th, Quartermaster Quennehen, carrying his mechanic as passenger, flew, with Epinal as a centre, for 9 hrs. 20 mins., during which he covered a distance of 650 kms.

On April 24th the Lyons Farman escadrille, flying via Dijon, landed without incident on the drill-ground at Belfort. The aviators were Capt. Voisin, Brigadier Blot, Lieut. Gourlez, Quartermasters Peltier and d'Oisy, and Corporal Sadi Lecointe.

The Blériot escadrille left Belfort on the same day and flew to Mailly.

Sergeant Maire flew his Maurice Farman from Verdun to Montbéliard, where he received an ovation. He flew later in the day to Belfort, where he passed the night.

Lieut. de Conneau, more generally known in the aviation world as "Beaumont," has resigned his commission in the French navy. He intends to devote all his time to the F.B.A. flying-boat business.

GERMANY.

On April 20th, Lieut. Geyer, with 2nd Lieut. Mikulski as passenger, covered 805 miles in an aeroplane. Starting from Königsberg early in the morning, he landed at Johannisthal, reached Mülhausen at 6.15, and started again for Strassburg, arriving at 8.5 p.m. He was only three miles behind the world's record made by M. Brindejone des Moulinais last year. Their average speed was 72 miles an hour.

On April 21st, Lieut. Schlemmer, of the 18th Regiment, accompanied by Lieut.-aviator Koenig, of the 8th Regiment of Artillery, flew from Metz to Hamburg with two intermediary stops at Cologne and Osnabruck.

On April 22nd, Lieut. Hempel, with Capt. Hundrieser as observer, flew from Fribourg, via Strassburg and Leipzig, to Johannisthal. Lieut. Brasser has left Johannisthal for a trip to Vienna, Buda-Pesth, Sofia, and back. Herr Basser is also on the same itinerary with a passenger on a monoplane.

It has been decided that all German military aeroplanes are to be equipped with a first-aid outfit, which will be plainly labelled and with directions for use, and placed in a conspicuous position so that the first arrivals on the scene of an accident may be able to render aid.

The Zeppelin "Sachsen" made a last flight on April 16th before being dissembled and altered. She is to be lengthened by at least 10 metres.

On April 20th the new dirigible Z. 8 left Friedrichshafen and flew to Leipzig. On the same day the Schutte-Lanz flew from Mannheim to Leipzig.

The Zeppelin Z. 8 made a flight on Tuesday, April 21st, from Leipzig to Baden, a distance of about 400 kms. (250 miles approximately).

The new Schutte-Lanz dirigible has made several trial flights during the last few days. With a crew of six, petrol and oil for 10 hours, wireless outfit and spares, a height of 2,100 metres (6,890 ft.) was reached and a speed of 87 kms. (54.8 miles) per hour. She is equipped with four motors of 170 h.p. each. The inspection commission have declared the tests to be satisfactory.

GERMAN S.W. AFRICA.

The first aviation ground in the German Colonies has been opened at Karibib, German South-West Africa. Flying to be undertaken will be mainly military, but the Governor hopes to use aeroplanes for the transport of medical men and mails.

RUSSIA.

The Sikorsky biplane, "Ilia Mourametz," is being transported by rail from Petersburg to Libau, where she is to enter the service of the Russian navy. The intention of fitting her with floats has now been definitely abandoned. The distance from Petersburg to Libau is only 650 kms. (about 403 miles), which should be well within the capacity of such a machine, so that apparently an excellent opportunity of demonstrating the airworthy qualities of the machine has been lost.

ITALY.

Lieut. Napoli was flying with a passenger at Mirafiori on April 24th when he lost control of the machine. Both were killed.

Two Austrian aeronauts, Lieut. Meyer and Cadet Simonis, left Trieste on April 23rd in a balloon and were blown over the heights of Palanza, in Italy. The authorities seized their photographic apparatus and developed the plates, which disclosed photographs of Italian fortifications. The two officers were thereupon arrested and taken to Turin.

TURKEY.

The Constantinople-Cairo raid, interrupted by a succession of accidents, is to be resumed by Salim Bey and Kemal Bey. They will fly the Blériot monoplane (80-h.p. Gnome) purchased by the inhabitants of Edremid for this purpose. Salim and Kemal Beys and the machine are now en route for Beirut on the steamship "Saidie," and are expected to start their journey within the next few days. Their route will be Jerusalem, El Ariache, Port Said, Cairo.

Capt. Goys de Meyzerac has been put in charge of Turkish military aviation. He starts from France immediately.

BELGIUM.

On April 20th, Lieut. Liedel left Kiewit and flew to Genck. On attempting to resume his flight he ran into a deep trench. The officer had the presence of mind to elevate at the last moment, and so minimised the accident, but he was nevertheless somewhat badly hurt.

On April 21st, Lieut. Legros flew from Beverloo to Brasschaet, maintaining an altitude of 1,800 metres. The journey occupied 40 mins. Lieuts. Massaux and Hubert also made the same journey.

Foreign Notes.**France.**

M. Rost on a Deperdussin monoplane (80-h.p. Gnome), starting at 12.58 p.m., on April 15th, for an attempt on the 24 hours' record, flew for four hours in the dark at Etampes by the aid of electric lights carried on the machine. Rain then stopped the flight. In the course of this flight he beat all closed circuit speed records from 300 to 400 kms., covering the 400 kms. in 3 hrs. 53 mins. (103 kms. per hour).

On Sunday, April 26th, at Etampes, in a violent wind, M. Poulet, on a Caudron biplane with an 80 le Rhone motor, established a new world's duration record by flying 16 hrs. 28 mins. 56 secs., beating Herr Ingold's time by some 8 mins. The flight was made round a circuit from Etampes to Cercottes and back. His total distance was 936 kms. (591 miles).

The Prefect of Police addressed a letter to the French Aero Club requesting aviators not to fly over Paris on the occasion of the Review at Vincennes on April 22nd in honour of H.M. King George's visit in order that there might be no interference with the manœuvres of military aircraft.

Switzerland.

On April 22nd, M. Oscar Bider left Berne at 5.40 a.m. with a passenger on a Morane Saulnier-Gnome monoplane, crossed the summit of the Jungfrau, a peak 4,167 metres high, and landed at Brigue at 7.18. This is the second time M. Bider has crossed the Jungfrau.

Mr. Gordon Bell's Accident.

On Sunday Mr. Bell had a nasty smash on the "Doughnut," the machine coming down in an uncontrollable spiral from 100 feet or so. Mr. Bell was badly knocked about, cutting his face and complaining of internal pains. The machine was practically destroyed. The accident is ascribed to an elevator flap giving way. The machine did not demonstrate its inherent stability when the spiral started. This appears to have been an accident which should be officially investigated by the R.Ae.C., and the result of the inquiry should be published, as it is the second on this type of machine, and in the interests of the financial backers of the inventor it would be well to endeavour to remove any impression that the machine does not fulfil its inventor's claims.

Questions in the House.**ORAL ANSWERS. APRIL 22ND.**

72. Mr. JOYNSON-HICKS asked the Secretary for War whether inquiries have been set on foot amongst the officers of the Royal Flying Corps to find out who supplied information regarding the condition of the machines to the hon. Member for Brentford; and by whom were such inquiries authorised?

Mr. BAKER: In the interests of discipline, certain inquiries have been made as a result of the hon. member's speech on the 24th ultimo. They were authorised—and I think quite properly—by the Director-General of Military Aeronautics.

Mr. JOYNSON-HICKS: Am I to understand that in an important matter affecting the safety of officers of the Army they are not allowed in this democratic age to communicate with members of the House of Commons?

Mr. BAKER: That does not arise out of the answer. Inquiries were made because the hon. gentleman made in this House statements which were very serious, and which, if true, ought to have been reported by the officers to their squadron commanders. It further appears, I very much regret to say, from the inquiry, the hon. member has been writing and asking officers for information.

Mr. JOYNSON-HICKS: When is the Secretary of State going to answer the charges that I made and discuss them.

Mr. SPEAKER: That does not arise out of the question.

73. Mr. JOYNSON-HICKS asked the Secretary for War whether he accepts the obligations entered into by his predecessor with this House; and, if so, when he proposes to make a full statement, in answer to the hon. Member for Brentford, regarding the Royal Flying Corps, as promised by his predecessor on the 24th March?

The PRIME MINISTER: A full statement will be made when an opportunity arises.

Mr. JOYNSON-HICKS: Will the right hon. gentleman make an early opportunity for a discussion on the matter?

The PRIME MINISTER: I will look into it. It is new to me.

80. Mr. JOYNSON-HICKS asked the Secretary of State for War whether the Royal Flying Corps has recently ordered any German aeroplanes; and, if so, will he say how many, and why?

Mr. BAKER: No German aeroplanes have been ordered by the War Office.

Their Majesties' Aerial Escort.

On Tuesday, Commander Samson, R.N., Engineer-Lieut. Briggs, R.N., Lieut. Osmond, R.N., Lieut. Littleton, R.N.R., Sub-Lieut. Peirse, R.N.R., Sub-Lieut. Rainey, R.N.R., and Pte. Edmunds, R.M.L.I., flew from Eastchurch to Dover, and flew over the Royal yacht at their Majesties' departure for France. Lieut. Seddon, R.N., started from Grain Island with the same objective but was brought down off Leysdown by engine trouble. Naval airship No. 4 (Parseval) left Farnborough on Tuesday morning for Dover, but was delayed by contrary winds and did not arrive there till after the Royal party had left.



The Royal Yacht in mid-Channel. Photographed over the tail of Mr. Hucks' Blériot.

On behalf of "The Sphere" and the Coliseum, Mr. Hucks on his 80-h.p. Blériot carried a cinematograph operator of the Warwick Trading Co. across the Channel last Tuesday, April 21st, in order to obtain, by permission of His Majesty, pictures of the passage of the Royal Yacht and arrival at Calais. He started from Capel, some three miles on the Dover side of Folkestone, at 11 a.m., half an hour after the departure of the Royal Yacht from Dover, caught up the fleet in mid-Channel, circled three times, and on approaching Calais flew over the Harbour, enabling his operator to secure excellent pictures. Mr. Hucks landed at the Calais Aerodrome at 12, and started back with the film and the bouquet presented by the Mayor of Calais, at 1.45, reaching Hendon at 2.35, the film being shown at the Coliseum soon after 5 p.m.

The accompanying picture of the Royal yacht in mid-Channel is an enlargement from one of the films taken on this occasion and is here reproduced by the courtesy of the Proprietors of "The Sphere," the London Coliseum, and the Warwick Trading Co., Ltd.

The Schneider Cup Race.

Owing to *THE AEROPLANE* going to press on Tuesday it was impossible to publish a full account of Monday's race last week. However, the following details are still of interest:—

MONACO, Monday, April 20th.

As I telegraphed to you this evening, Howard Pixton, on the little Sopwith hydro-biplane with 100-h.p. monosoupape Gnome engine, British Integral tractor, and doped with Cellon, defeated the pick of the world's fastest waterplanes in the most decisive manner. And right here I would like to say that the famous French and other pilots who are here, and have actually flown in the race, or, at least, watched from the shore, are among the first to give full credit to the constructors and pilot of the victorious machine, and from no one does one hear higher or more unstinted praise than from these good sportsmen.

The Sopwith had her first serious flight early yesterday morning. This flight was made with a Lang tractor of large diameter but moderate pitch, and she certainly travelled remarkably fast with this Weybridge-built "windstick." But the engine was running too fast for the liking of the Gnome experts on the spot, 1,350 r.p.m. being considered too many for a flight of something like two hours. Therefore, during the day this propeller was removed and a British-made Integral of somewhat smaller diameter, but much coarser pitch, substituted, it being necessary to cut an inch or so off the end of the steel boss sleeve to accommodate the new Integral.

Sundry other little jobs had to be done, and it was thought advisable to increase the normal fuel supply of 24 gallons by a supplementary tank holding some 5 or 6 gallons, as the consumption of the engine was an unknown quantity, and the speed of the machine was also problematical. Therefore a small tank was lashed in position alongside the pilot's seat, and connected up to the main tank with a pressure pump to force the contents thereto, the total fuel supply carried being some 30 gallons. As a purely precautionary measure, a pair of heavier stay wires were spliced in and fitted on the float chassis, as those originally fitted had stretched at the first trip, and several other little matters received attention. We were all being commiserated with by the non-experts because news had gone round that the machine had been out but could not get off the water, the fact being that the F.B.A. flying boat had been out during the morning, but had been totally unable to get up with a full load of fuel. Both machines being biplanes, and the F.B.A. not being generally known, those watching jumped to an erroneous conclusion.

Early to-day we all turned out to assist in getting the Sopwith afloat, finding quite an animated scene on our arrival at 5 a.m. Lord Carbery had the intention of flying Janoir's Deperdussin as a second British entry, and got under weigh at about 5.15 a.m. for his first trial. After upwards of an hour he came in and the machine was pulled out of the water. Weymann with his Nieuport was also out for a time, and the F.B.A. got going about 6.15.

By 6.30 the little Sopwith was afloat, and two or three minutes later taxi-ing out to the harbour mouth, where she got up with a slightly longer run than yesterday, being, to all appearances, rather less fast when in the air. Pixton then went for a turn round the course, and the "crew" bundled into a car and ran round to the main harbour to meet him on his return, being just in time to assist—bare-footed—in beaching the machine outside the Hotel Bristol, where we are all staying.

The rules provided for starts at any time after 8 a.m., the time limit being at sunset—6.47 p.m. Starts must be taken afloat or taxi-ing, and during the first round two landings had to be made within a certain prescribed area just off the course. These landings made, 28 laps had to be completed, the total distance being 280 kms., or 174 land miles, with four turns to each lap—one of these being very acute indeed, and the others somewhat more than right angles. The wind was about S.E., blowing up to about 15 m.p.h. at 8 a.m., freshening to 25-30 m.p.h. later on, and dropping to about 20 in the afternoon. The sea was fairly smooth to begin with, though there was quite a ripple at all times, while it became quite rough an hour or two after the start—so rough as to give some

anxiety on account of the danger of smashes on alighting at the conclusion of the race.

The entrants on the spot were:—

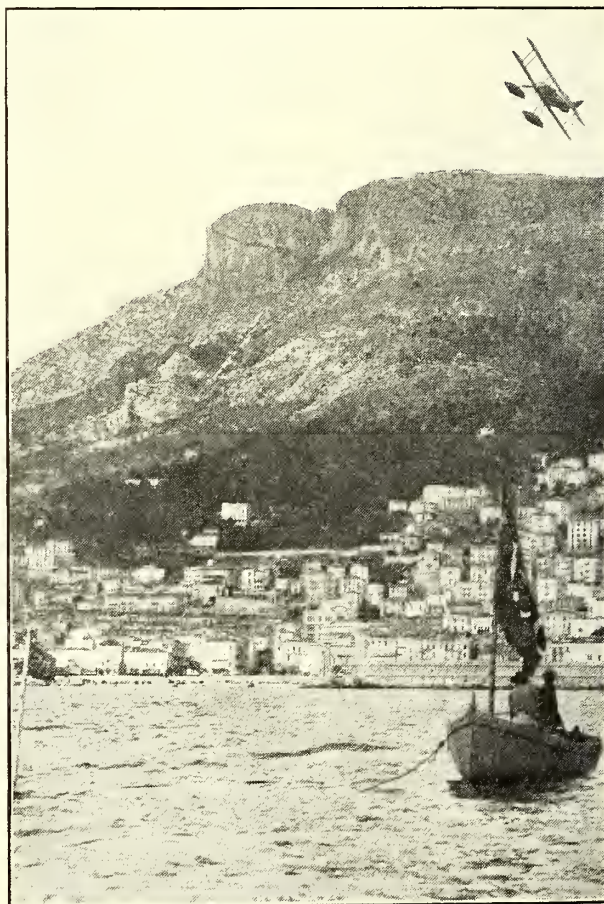
France.—Espanet, Nieuport mono, 14-cyl. 160-h.p. Gnome. Levasseur, Nieuport mono, 14-cyl. 160-h.p. Gnome. Garros, Morane-Saulnier mono, 14-cyl. 160-h.p. Gnome.

America.—Weymann, Nieuport mono, 18-cyl. 160-h.p. Le Rhone. Thaw, Curtiss biplane, 8-cyl. 100-h.p. Curtiss.

Switzerland.—Burri, Franco-British Aviation Co. flying-boat, biplane, 9-cyl. 100-h.p. Gnome.

England.—Howard Pixton, Sopwith biplane, 9-cyl. 100 h.p. monosoupape Gnome. Lord Carbery, Deperdussin mono, 18-cyl. 160-h.p. le Rhone.

As the 8 o'clock bomb went, Levasseur's engine was heard to open out, and he crossed the line at 8.00.05 at about half speed, getting into the air within about 200 yards quite nicely. At 8.00.39, Espanet crossed the line all-out, and was in the air before the bomb had time to explode. Burri came out and made a somewhat sedate start, the F.B.A. doing her usual series of hops before getting away finally, the official start being at 8.05.47. By this time the two Nieuports were round and doing their stipulated landings, Levasseur managing his quite neatly and getting off again at once, while Espanet could only manage one landing within the proper space, having to make a round turn in the air and do his second one quite separately. Burri did his two bumps quite nicely, the boat bounding into the air again like a football. This machine has a trick of bouncing as she starts or lands that is quite entertaining to watch, the step under the hull just lifting clear and then touch-



Mr. Pixton on the Sopwith rounding the mark boat. La Turbie in the background.

ing again several times before she finally makes up her mind to fly properly. The Nieuports get off pretty well, the Moranes and Deperdussins more sluggishly, and the Sopwith quicker than any.

Pixton came out a quarter of an hour later than the others, crossing the line absolutely all out at 8.16.28 and getting into the air within 50 or 60 feet of the line, though he bumped on the top of a sea just once after lifting. He went off at a great pace head to wind down the long leg of the course, and could be seen turning sharply off Cap Martin, quickly coming back to do his two bumps. These were accomplished splendidly, the two touches being quite unmistakable, yet not so heavy as to slow the machine very greatly—in fact, his first lap was only some 17 seconds slower than his second, and much quicker in proportion than any of the others. As Pixton came along and took the square turns opposite the Tir au Pigeons and terraces, quite a sensation was caused by the way he banked the machine and the closeness of his turns, for no waterplane has ever been seen banking like it at Monaco, if anywhere. He gave the full warp and banked up from 60 to 70 degrees every time, even then showing some tendency to slide off up-hill. It was at once seen that the Sopwith was very much faster than either of the other machines, and it soon became a matter of figuring out what sort of beatings they would all have—provided the engine would hold out.

However, the race went on for an hour or so in the most uneventful fashion, Pixton lapping with the regularity of a cheap alarm clock, if not with that of a good watch, his lap times being after this fashion for a series: 4 mins. 05 secs., 4.08, 4.04, 4.06, 4.09, 4.09, 4.09, and so on. Then, in the fifteenth

lap his engine was heard to be misfiring, and a sudden and most distressing attack of cold feet took possession of every onlooker—for even the French seemed quite keen on seeing the fastest machine win, recognising that the Sopwith is, indeed, the fastest thing on floats, and that a French win after what had already been seen would be no sort of win to feel pride in. In the sixteenth lap the time had fallen to 4.22, and our hopes to a very low ebb, but as lap after lap went by and the "tabloid" kept going—the engine having settled down to its work on eight cylinders—things began to take on a more rosy appearance and courage was revived (Dutch courage, in some instances, though).

The lap times were then rather less regular, varying from 4.22 to 4.31, with one very bad one of 4.40, though the variation per lap from the 22nd to the 28th inclusive was no more than $1\frac{3}{5}$ secs.—a truly marvellous degree of regularity. Finally, amid cheers and great enthusiasm, Pixton crossed the line for the 28th time at 10.16.41, his elapsed time being just 2 hrs. and 13 secs. As previously arranged, he went on for another two laps, so that times might be got for the full 300 kilometres and to make sure that no question should arise about marks having been cut too closely, his time for the full distance being 2.09.10.

Analysed, the speeds may be set forth thus:—

300 kms. in 2.09.10, equal to 86.6 m.p.h.

200 kms. in 1.24.40, equal to 88.1 m.p.h.

100 kms. in 0.41.33, equal to 89.9 m.p.h.

Fastest lap of 10 kms., equal to 92.1 m.p.h.

Fastest 5 laps, 50 kms., equal to 91.0 m.p.h.

Meanwhile, although hopelessly outclassed, the other three



Mr. Pixton (as usual, modestly in the shade) being towed into Monaco Harbour after the Sopwith victory. Below, M. Burri on the F.B.A. boat, starting out of harbour. Both machines had 100-h.p. monosoupape Gnome engines.

starters had been doing lap after lap with fair regularity, and Lord Carbery had started at 4.42.07, getting off all right, but failing to get up again after his first landing, his engine popping and banging back into the carburettor. After towing in and attending to matters, he had a fresh start, but could do only a couple of laps, and was finally towed home with hopeless engine trouble. Espanet came down after 17 laps, and Levasseur after 18, both with overheated engines and more or less seized pistons: it seems to be the case that the two-row engines get overheated in the back set, for this is by no means the first time this trouble has occurred.

Burri did about 20 laps and then went into the harbour to fill up again with fuel, as he started with too small a supply to carry him right through the race, having found yesterday that he could not get up with full load. After filling up he went out again and completed the course, his finishing time being 11.29.19, or 3.23.32 elapsed time. The speeds of the machines other than the Sopwith were, for the best 50 kms. of each: Espanet's Nieuport 75 m.p.h.; Levasseur's Nieuport 72.7 m.p.h., and Burri's F.B.A. 65.3 m.p.h.

Of course, the race was not yet over, for Garros, Weymann and Thaw could start if they pleased, though they knew very well, and freely admitted, they had no chance of beating the Sopwith's speed. M. Weymann, by the way, was most enthusiastic in regard to the biplane's performance and Mr. Pixton's handling of her, and it is not unlikely that he will be seen flying a tabloid sooner or later. At the end of his 30 laps, Pixton came down in very rough water and made a good landing, with the intention of resting awhile before going into harbour again. While waiting for his mechanic, Mahl, who was out in a motor-boat ready for eventualities, he omitted to secure his controls, with the result that an extra big sea damaged the elevator, and he thought it wiser to tow home, rather than to risk flying under the circumstances. As showing the amount of sea running at that time, it may be mentioned that the whole of the lower portion of the machine and the lower surface occasionally disappeared from view in the trough.

The donor of the trophy, M. Jacques Schneider, was on the beach in the harbour to welcome Pixton as he landed, and was most hearty in his congratulations. Levasseur went out about 4 p.m. on Weymann's Nieuport, but only did one lap, making another fresh start about half an hour later with the idea of completing the course—though he was not officially timed.

MONACO, Tuesday, April 21st.

Last evening, at the invitation of M. Jacques Schneider, we met at the Hotel de Paris to dine in honour of the event of the day, when among the guests doing honour to the "Coupe" were the successful pilot (Mr. Howard C. Pixton), the constructor of the winning machine (Mr. T. O. M. Sopwith), Mr. Harry Delacombe and Mr. Perrin as representing the Royal Aero Club, Lieutenant Courtney, R.N., Mr. Cortland Bishop and Mr. Thaw of the Aero Club of America, M. Georges Prade, the "clerk of the course," and his willing assistant and secretary, M. Leon Demanest, M. Boris of the French Naval Engineering Service, Lieut.-Aviator Destrem of the French Navy, and Lieut. Bourée, A.D.C. to the Prince of Monaco. Just one or two toasts were drunk, and a very pleasant gathering broke up at a quite reasonable hour.

This afternoon His Serene Highness Prince Albert I. of Monaco visited the exhibition ground and presented the chief prizes to their respective winners. Among those presented to his Highness were Messrs. Sopwith and Pixton, who had the honour of being very heartily congratulated—A. C. BURGOINE.

The Monaco correspondent of "L'Aero," apropos of Mr. Pixton's victory in the Schneider Cup race, speaks of the "incontestable superiority of the little biplane whose constructional qualities—according to Garros himself—accord admirably with those of the pilot, who handled her with such a master hand," and the success of the Sopwith is taken in an admirably sportsmanlike fashion by our French contemporary.

An Austro-Daimler Victory.

AS THE AEROPLANE goes to press news is received that Herr Wittmann on a Lohner monoplane with a 90-h.p. Austro-Daimler has won the Schicht prize of £5,000 for the Circuit race from Aspern (Vienna) via Prague and Brun, the most important event yet held in Austria.

The Argyll Aero Motor.

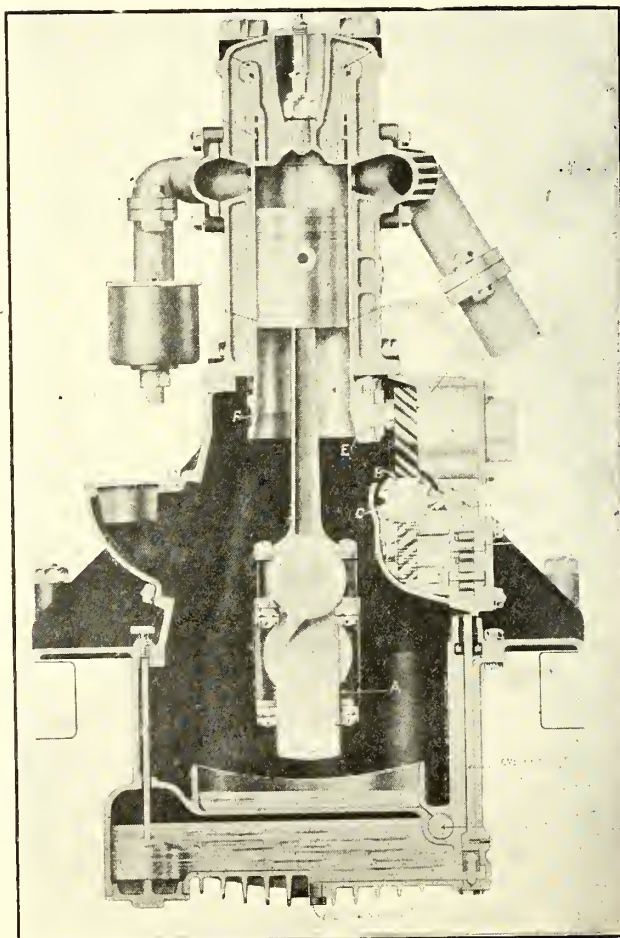
It will be remembered that Argylls Ltd. showed on their stand at the recent Olympia Show an example of their new 120-h.p. sleeve valve aero engine. Through the courtesy of the firm, we are now able to reproduce the accompanying cross sectional view of one of their car engines having the same type of valve gear, which is of great interest.

A longitudinal shaft runs along the crank case on the exhaust side of the motor and carries a series of skew gears B, one for each cylinder. Each such wheel meshes with a further gear wheel D, whose axis is at right angles to the crank shaft. In this latter wheel is bored an eccentric hole, bushed to form a bearing for the pin E, which is coupled through a pin-joint—clearly shown in the illustration—to the sleeve itself F. Since the pin E describes a circular path owing to the rotation of D, it is clear that the sleeve must move vertically up and down, and also must have a reciprocating, partial rotary, motion within the cylinder walls.

In the cylinder walls are six ports, three for inlet purposes and three for the exhaust. The sleeve carries five ports, of which two are exclusively reserved for inlet, and two for the exhaust, while the remaining one is used alternately for both purposes.

All these ports are of special form, which in combination with the peculiar motion of the sleeve secures sharp opening and closing of the ports, and a relatively long period of almost uniform area of inlet or exhaust passage between.

During the actual explosion stroke the sleeve is at the upper end of its vertical travel, and the ports therein are above the cylinder head—at about the point marked H in the illustration—preventing the destruction of the oil film between the sleeve and the cylinder walls and consequent lubrication troubles at this surface.



Sectional view of the Argyll Engine.

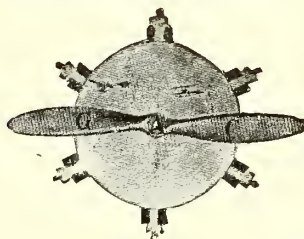
ACCLES & POLLOCK, LIMITED

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**

OLD BURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST

EVERYTHING FOR AVIATION & AVIATOR
"THE LATEST & THE BEST."

Booking
Office for
Passenger



and
Exhibition
Flights.

GENERAL AVIATION CONTRACTORS, Ltd.,
Phone: 280 Gervard. 30, Regent St., Piccadilly, S.W.
Wire: Santochino, London
Cables: Aeros, Milan.

One Moment—Mr. Aviator!

Just reflect how easily little mishaps occur. Be prepared. You can dress wounds promptly and properly by means of this pocket outfit of bandages, etc.

'TABLOID'

TRADE MARK

BRAND

FIRST-AID

No. 706 (Aviator's)

Price, 7/6. All Chemists

Burroughs Wellcome & Co., London

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works: BROOKLANDS AERODROME, WEYBRIDGE, SURREY.

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone: Byfleet 190.

CELLON

LTD.

17, OLD BROAD STREET, LONDON, E.C.

CELLON was used on the SOPWITH waterplane which won the **SCHNEIDER CUP.**

CONTRACTORS TO H.M. GOVERNMENT.

Telegrams: "AJAWB LONDON."

Telephone: 5359 London Wall.

HANGARS.

Any size built and fitted with
PERFECT SLIDING DOORS

obviating all the disadvantages of every present system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

GARAGES, CLUB HOUSES
and other buildings. *Estimates Free.*

WIRE-WOVE ROOFING COMPANY,
108, Queen Victoria St., London, E.C.



NOTHING BETTER

A. V. ROE & CO., LTD., MANCHESTER

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Hendon Accident.

On Sunday last, April 26th, Philippe Marty, flying a Morane-Saulnier monoplane (60-h.p. Le Rhone motor) at Hendon, was killed while attempting to land after looping the loop. M. Marty, who was only twenty-one years of age, had had an active career as an aviator. Originally a Caudron pilot, he flew well for that firm in 1912, and on several occasions beat various height records with passengers. When flying a Caudron to Hendon for delivery to the Navy, he failed to land and report himself as prescribed by the Aerial Navigation Act, and was arrested when he descended near Maidstone owing to engine trouble, being thus the first to break the new law. He was let off with a caution. Afterwards he joined the Ewen firm and continued to fly Caudrons. Last year he joined the Grahame-White Company and flew Blériots and Moranes for them, and it was on one of these Moranes he was killed. It is worthy of note that this is the first fatal accident to a pilot of the Grahame-White Company, despite the amount of flying done by them.

Philippe Marty was a cheerful little soul, and was very well liked by all the other pilots, who will feel his loss deeply. As an aviator he had very quick hands and good eyes, but he always seemed to me to be lacking in judgment. His accident on this same machine only a couple of months ago was certainly caused by not stopping to think when and where he could best get off the ground. Also, he was fond of careering round the aerodrome in an aimless way, cutting capers and doing tricks in a manner which was highly diverting to watch, but appeared very disconcerting to pilots of slower machines which happened to be in the vicinity. I confess that his death surprised me less than has that of almost any other aviator who has died in this country. Nevertheless, one will miss his cheery presence among the little groups of aviators one meets at Hendon.

Eye-witnesses of the accident state that M. Marty had made several loops, less neatly than was his wont, the machine appearing to make unusually large circles, and stalling several times without reaching the top of the loop. He then descended in a spiral, switching on and off. At 100 feet, instead of flattening out for a straight glide, he continued to spiral till he struck the ground. The opinion of some onlookers is that M. Marty simply misjudged his height and tried to get in another turn of the spiral where there was no room. However, a close observer of flying, who was on the spot, tells me that for some time before the machine struck M. Marty had his rudder full over, and his elevator full up, trying to get the machine up and out of the spiral.

A Possible Cause.

In the latter case the accident appears to be of a similar nature to that which happened to M. Noël and Prince Sapieha some ten days before. While investigating that accident, I elicited some interesting facts about the Morane-Saulnier machines which, as they apply to most other machines in one way or another, are worth close consideration. I have often heard Mr. Hamel and other pilots say that the Morane rudder is useless to fetch a machine off a bank, owing to its small size and short radius from the centre of gravity of the machine. It is merely sufficient to counteract any drag set up by using the full warp. Consequently, it is only useful in starting a turn or helping the warp, all the real work being done by the warp wires, which are also, please note, the rear spar main load wires.

Now, I learn, through M. Gondre, Mr. Hamel's engineer-in-charge, that it is necessary to keep the whole system of warp wires, under and over the wings, in full tension; there must be no slack anywhere. This is fairly obvious, of course, for if the lower wires slack out the rear spars are allowed to rise, and the angle of the wings "washes out" towards each wing-tip, so that the wing would ultimately assume such a shape that the machine would be unflyable. Unfortunately

there is an intermediate stage in which the machine is flyable but dangerous.

When the wires are a little slack the rear spars "slop about" and it is impossible to hold the control lever steady or to pull the spar back against its inclination. This, I gather, is due to the position of the rear spar in relation to the movement of the centre of pressure. The first B.E.s were particularly bad in this way, but the later type were cured by altering the position of the spar and putting it farther back. Now it seems reasonable to suppose that in such a "self-warping" wing one spar may go up and the other down, and stick there, forcing the machine to spiral, even against full rudder, till it turns right over and does a "side loop," when the performance starts all over again. I am practically certain M. Noël's accident occurred in this way, and it seems probable that M. Marty's was due to the same cause.

The reason for keeping the wires of the Morane absolutely rigid is that the excessive tension so caused may force the working parts to act as a brake on the automatic warp. The principle is as thoroughly bad as anything in aeroplane design could well be. The excellent workmanship and other points in the design of the Morane save the machine from entire condemnation, but this point needs altering at once.

Sudden Strains on Cables.

However, to return to the two accidents at Hendon. Both machines had just been rebuilt in the Grahame-White works, and new cables had been fitted. Every new machine has to "find" herself. Cables have to stretch, attachments have to bed home, and the slack has to be taken up. In ordinary flying, or in straight looping, the slack develops fairly gradually, for the load is steadily on the underside cables, but in tail-sliding, side-looping, and falling about upside down generally, the load comes suddenly on the top wires, and if any slack develops the load is transferred with a sudden jerk from one wire to the other, which will probably stretch the cables more in five minutes than ordinary flying would in a week, during which week the cables would be tightened up several times, so that a machine which has only a trifle of slack in comparatively new cables when it starts up to loop may become absolutely uncontrollable after it has been flying for ten minutes and has done three or four loops.

M. Noël told me after his smash that he knew his cables were slack when he started, but he thought they would do for just one more trip, as the mechanics were busy and there was no time to spare for adjustments. Two loops made the difference between a controllable and an uncontrollable machine. He and his passenger escaped. It seems possible that M. Marty's luck was not so good under similar circumstances.

The moral is that the pilot is the person to blame if he comes to grief through flying a machine which he knows needs adjustment, but if a pilot has not enough mechanical knowledge to see whether a machine is safe or not he must depend on someone else, as Mr. Hamel depends on M. Gondre, for example, and that someone else must have the power to forbid the use of a machine which he considers unsafe. As it is, at all aerodromes, civil, military and naval, one finds continual argument between engineers and pilots as to whether certain machines are fit to fly or not. In the Services, the flight-commanders, and above them the squadron commanders, shoulder the responsibility, in theory, but at civilian grounds no one seems to have a right to forbid the flying of a machine in the absence of the school manager. A regular inspection of each machine after each flight seems necessary, and the inspector should have the power to forbid flying, for at present if an experienced pilot refuses to fly a machine which he considers dangerous some young fool will probably butt in with the remark, "Old So-and-so's got cold feet, I'll fly the 'bus if he's afraid." And as a result "old So-and-so," rather than risk losing his reputation for courage, flies the machine, and quite possibly breaks his neck.—C. G. G.

Flying at Hendon.

On Thursday afternoon the usual display took place. Mr. Noel flew a G.W. biplane, Mr. Strange the tractor, Mr. Birchenough a box-kite, Mr. Whitehouse the Hand'ey Page biplane, 100-h.p. Anzani engine, Mr. Goodden looped on his Caudron, and Mr. Carr gave the resurrected char-à-bancs a re-baptism, accompanied by Mr. North. The Beatty-Wright machine was also in evidence, and Mr. Hall flew his Avro. A night flying display was given by Messrs. Noel and Birchenough on a G.-W. biplane, and by Mr. Beaumann on the Wright and Mr. Goodden on the Caudron. Mr. Goodden ascended to a considerable height and looped three times on the way down, the circling lights showing the loop clearly. This, it should be noted, is the first time anyone has looped in the dark. Once done there seems no need to repeat the performance. A pyrotechnic display closed the evening.

Saturday's flying was of a very high order. The first pilot out was Mr. Verrier, who took up a beautiful, new Henri Farman and did weird things on it, the 35-40 mile wind apparently making but little difference to him. M. Marty soon followed, and gave demonstrations of looping. Mr. Birchenough did wonders with the twin-ruddered box-kite.

After some delay, the cross-country handicap was flown. There were only three entries, as several of the Grahame-White machines were undergoing a well-earned overhaul. Mr. Birchenough was limit on the faster of the box-kites, Mr. Verrier flew the Henri Farman, and M. Marty was scratch on the 60-h.p. Morane. All flew well, but the gusty wind spoiled the handicapping, and Messrs. Marty, Birchenough and Verrier straggled in at quarter-mile intervals.

During the race, the Handley Page biplane, 100-h.p. Anzani engine came out, and piloted by Mr. Whitehouse with Mr. W. Rowland Ding as passenger made a short flight. The Grahame-White all British five-seater biplane made several flights with Mr. Carr at the wheel, and with a varied assortment of passengers, who strolled about the body of the machine. When the wind was at its worst, Mr. J. L. Hall made a short but very good flight on his Avro.

After the curfew bomb had exploded, the two-seater propeller biplane, 100-h.p. monosoupape Gnome seen at the Aero Show was brought out with the idea of giving it its maiden flight. Unfortunately, an incident arose which had the making of a nasty accident. Mr. Carr underneath, with his head and shoulders hidden inside immediately in front of the engine, flooded the cylinders with petrol, after which Mr. Grahame-White, who was superintending the operations, twisted the four-bladed propeller round to drive the petrol out again. Immediately, the motor started with a roar, Mr. Grahame-White jumped back out of the way, catching hold of a tail strut as he did so, while several bystanders followed suit. Of course the petrol was soon turned off and the motor stopped, but it was a very near thing for Mr. White, and a still nearer thing for Mr. Carr, who was boxed up inside.

When the monosoupape did get going—and go it did! it was found that the exhaust scorched the trailing edge of the lower plane, so the machine retired for minor alterations.

At about 7.35 Mr. Hamel arrived on his Morane, accompanied by Baron de Gunsberg. They had flown from Burton, via Taplow, in two hours, including two short stops en route.

Sunday was an ideal day for flying, and everyone seemed in first-rate form. M. Verrier's flying was undoubtedly the feature of the afternoon, for he was literally in the air all the time, first on one H. Farman and then on another. He took up many passengers, including Miss Una Dillon, a young lady of some ten summers, and gave them and the onlookers thrills "assortis." M. Verrier does not loop, for looping is easier than flying properly—he merely tilts his machine over sideways until it is absolutely upside down, then pushes the nose down till the machine dives vertically and flattens out. The char-à-bancs, lately rebuilt, was out, flown by Mr. Grahame-White, M. Noel, and Mr. Carr. Messrs. Birchenough, Lillywhite, Strange, Howarth and Morris flew box-kites. Mr. Strange took passenger on "Lizzie," M. Baumann did much flying on the Beatty-Wright, and Mr. Hall was out on his Avro. Messrs. Marty and Goodden gave demonstrations of looping. The flying was brought to an unhappy conclusion by an accident to M. Marty, who fell from 100 feet on the Morane, sustaining fatal injuries.

Flying at Brooklands.

On Monday afternoon Herr Roempler was out on the D.F.W. Mr. Barnwell took a passenger on the 70-h.p. Vickers' biplane, and Mr. Waterfall was doing passenger work on the Martinsyde. The Parseval dirigible passed over the aerodrome en route for Dover.

On Tuesday, Mr. Waterfall was flying the Martinsyde, and later went to Farnborough with Lieut. Blatherwick, R.N., as passenger. Capt. Herbert arrived from Netheraven, via Farnborough, on a Henri Farman, and was shortly followed by the Albatros, 100 Mercédès engine, piloted by Herr Hans Vollmöller, with Major Brooke-Popham, R.F.C., as passenger. In the afternoon, Mr. Barnwell was out on the 50-h.p. Blériot; the Parseval dirigible returned over the aerodrome. Lieut. Collet, R.M.A., did a circuit on the Albatros. Capt. Herbert and Major Brooke-Popham left on the Henri Farman. Mr. Jack Alcock was flying the Sunbeam Farman.

On Wednesday, Mr. W. H. Dyke Ackland took an excellent brevet on the Vickers' biplane, reaching a height of 1,200 feet. Later Mr. Barnwell went to Farnborough on the 80-h.p. Sopwith "tabloid" to put her through the R.F.C. tests. He left Brooklands at about 2,000 feet after doing a half circuit. The official speed variation was 94.9—39.6 m.p.h.

On Thursday, Mr. F. W. Merriam was out testing the new Bristol school biplane. In the afternoon, Lieut. Robin Grey arrived on a 50-h.p. Avro No. 291. A B.E. passed over in the direction of Shoreham.

On Friday, Lieut. Robin Grey left for Eastbourne on the 50-h.p. Avro. Lord Edward Grosvenor's 80-h.p. Blériot arrived by road, and a new Sopwith scout arrived from the works and was out later for engine testing. Lieut. Collet was out on the D.F.W. and on the Albatros, doing heavily banked turns and fast and slow flying. Herr Vollmöller and Mr. Gustav Hamel also flew the Albatros, the latter giving a most amusing display, owing to his being unused to the biplane. Mr. Waterfall arrived from Farnborough on the Martinsyde, which machine did not do well in the tests owing to the engine running very badly, but its speed was somewhere about 75 m.p.h. despite this, and its climb well over 500 ft. per min.

On Saturday, Lieut. Collet and Mr. F. P. Raynham were out on the Albatros. Mr. Barnwell was testing the modified Vickers gun-carrying machine which flew very well. A B.E. passed once in the direction of Farnborough. Lieut. Collet was out on the D.F.W. Mr. Pixton was on the 80-h.p. Sopwith scout, and Herr Vollmöller was passenger-carrying on the Albatros.

On Sunday, before a good crowd, Mr. Pixton did wonders on a Sopwith "tabloid," but one wishes he would do his spirals away from the crowd. They are easier to see when over the river, and do not alarm nervous spectators so much as when done directly overhead. Herr Vollmöller flew well on the Albatros. Messrs. Barnwell, Elsdon, Knight, and Merriam flew box-kites.

The next race meeting at Brooklands will be held on Whit Monday, June 3rd, car racing starting at 12 noon. After the car racing there will be an aeroplane handicap for a prize of 50 sovereigns or a cup at option, 25 sovereigns to the second, and 15 sovereigns to the third.

This race is sure to be unusually interesting, as there will be at least one Sopwith "tabloid" entered, and possibly two, and it is also probable that the entries will include Bristol, Vickers, and Avro scouts, as well as Albatros and D.F.W. biplanes, the Martinsyde monoplane and various other machines.

It is interesting to see that the pluck and fine workmanship of the Martin-Handasyde firm is receiving some recognition at last. They are at present engaged in building a colossal monoplane which is to go abroad when it has completed its tests. This machine will have a span of 63 feet, and a maximum chord of 14 feet, with a minimum chord of 10 feet. The engine will be something over 200-h.p., but of what make has not yet been decided. In its other dimensions it is a replica of the present machine enlarged 1.7 times. Though the name of the purchaser is being kept a secret, one gathers that the machine is intended to go for long-distance records, the high efficiency of the present Martinsyde making the design particularly suitable, as it combines high speeds with lifting capacity which permits it to carry a big supply of fuel.

The Week's Work.

Weather Report for Week Ending April 26th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Good	Windy	Windy	Windy	Windy	Windy	Fair
Eastchurch ...	Fine	Fine	Fine	Fine	Windy	Fine	Fine
Hendon ...	Fair	Fair	Fair	Windy	Fair	Windy	Fine
Montrrose ...	Bright	Bright	Stormy	Gale	Gust	Bright	—
Salisbury Plain	Good	Windy	Good	Imposs	Fair	Fair	—
Shoreham...	Good	Fair	Ideal	Good	Windy	Good	—

School Reports.

Brooklands.—At BRISTOL SCHOOL: Instructor: Mr. Merriam. Pupils with instr on machine: Lt Mills (5); Mr. Eastwood (1); Mr. Jacques (1). 8's or circe alone: Lt Smythies (2). Machines in use: Two school biplanes.

At VICKERS SCHOOL: Instructors: Messrs. Barnwell, Knight, Elsdon, Webb. Pupils with instr on machine: Maj Phillips (13); Lts Underhill (4); Acland (2); Leighton (5); Farie (5); Wood-Smith (15); Messrs. Murray (10); Liddell (14); and Collins (17) (biplane). 8's or circe alone: Lt Leighton (7); Lt Acland (4); Lt Underhill (5); Mr. Liddell (2); (biplane); Mr. Hinshelwood (1) (mono). Certificate taken: Lt Acland (on biplane). Machines in use: Two biplanes; one mono.

At SUNBEAM Co.—Mr. Jack Alcock on Maurice Farman (150 Sunbeam) out on Tues., Wed., and Thurs. with passengers.

Eastchurch.—The Hon. Maurice Egerton on Short biplane (50 Gnome) flew on Mon., Tues., Wed., Fri., and Sun. Mr. Sidney Pickles on his Blériot (60 Anzani) flew to Whitstable and back, and on Wednesday started for Hendon with Mrs. Marsden as passenger, but ran into a thunderstorm and was forced to return. Mr. Pickles flew again on Thursday. Mr. Ogilvie out on Thursday on his Wright (N.E.C. 50 h.p.) and again on new machine with 35 Green engine, which behaved excellently; and on Sunday was again out on both machines. Mr. Frank McClean flew on Friday and Saturday. Prof. Huntington was out on Sunday.

Hendon.—GRAHAM-WHITE SCHOOL: Instructors: Messrs. Strange, Howarth and Cripps. Pupils with instructor on machine: Messrs. Weber, Boyesen, Robinson, Lowe, Moore, Cowley, Norris, Peck (new pupil), Maj Piercy. Doing strts: Messrs. Smiles, Parker, North, and Maj Piercy. 8's or circe alone: Messrs. Parker, Smiles, North and Maj Piercy. Machines in use: School propeller biplanes, Blériot monos.

At CAUDRON SCHOOL: Instructors: Messrs. Goodden and Warren. Pupils doing strts or rolls alone: Messrs. Verney, McGregor, and Garvin. 8's or circe alone: Messrs. Verney and Carruthers. Certificates taken: Messrs. Verney and Carruthers. Machines in use: 35-h.p. Caudron biplanes.

At HALL SCHOOL: Instructor: Mr. J. L. Hall. Pupils with instr. on machine: Messrs. Arcier, Allen, Palmer, Gearing. Rolls alone: Messrs. Gibson and Haines. Machines in use: Avro and Caudron biplanes, Blériot mono. Exhibition flights on Avro by Mr. Hall on Thursday, Saturday, and Sunday.

At BEATTY SCHOOL: Instructor: Mr. Bauman. Pupils with instr. on machine: Messrs. Ding (61 mins.), Watts (42 mins.), Ruffy (61 mins.), Stewart (15 mins.), Hodgson (26 mins.), Bentley (25 mins.), Maj Piercy (30 mins.). 8's and circe alone: Messrs. Ding and Watts. Machine in use: Wright biplane.

Shoreham.—At SHOREHAM FLYING SCHOOL: Instructors: Messrs. Elliott and Lusted. Pupils with instr on machine: Messrs. Cannon, A. Maskell, P. H. Maskell, Gates, Aikman, Sholto-Douglas, Hayland-Wilson. Strts or rolls alone: Messrs. Cannon, A. Maskell, P. H. Maskell, Gates, Aikman, Sholto-Douglas and Wilson. 8's or circe alone: Messrs. A. Maskell, Cannon, P. H. Maskell, Aikman. Machines in use: Henri Farman type (50 Gnome); 45 Green-Avro.

At PASHLEY SCHOOL.—Instructor: Mr. C. L. Pashley. Pupils with instructor on machine: Messrs. Mortimer, Nicholl, Dawson, and Grey. Strts or rolls alone: Mr. Nicholl. 8's or circe alone: Mr. Hale doing half right-hand turns and circuits at 1,000 ft. Machine in use: Henri Farman type biplane. On Wednesday Mr. Pashley, with Mr. B. F. Hale, to Brighton, returning later with lady passenger. On Friday, at dawn, to Worthing. On Saturday and Sunday exhibitions.

Salisbury Plain (BRISTOL SCHOOL): Instructors: Messrs. Busteed, Sippe, Jullerot, Voigt, Stutt. Pupils with instr on

machine: Mr. Hay (7); Mr. Parker (8); Capt Walcot (2); A.M. Locker (3); Lt Smythies (1); Lt Rabagliati (1); Mr. Gresley (2). Strts or rolls alone: Lt Myburgh (1); Lt Rabagliati (2); Capt Walcot (2); Lt Smythies (2). 8's or circe alone: Lt Myburgh (5); Lt Rabagliati (3); A.M. Locker (5); Capt Walcot (4); Lt Smythies (4); Mr. Hay (2). Certificate taken: Lt Myburgh (21-4-1914) on biplane. Machines in use: Three school biplanes; two tractor biplanes.

Coming Events at Hendon.

The following events are announced to take place at the London Aerodrome:—Thursday, April 30th, 3 p.m., Bomb-dropping Competition. Saturday, May 2nd, 2.30 p.m., Summer Meeting. Saturday, May 23rd, 4.15 p.m., the Third Aerial Derby. Saturday, May 30th, Sunday, May 31st, Bank Holiday, June 1st, Whitsun. Eighth London Aviation Meeting.

Mr. Hamel at Burton.

On Saturday, April 25th, Mr. Hamel gave a series of exhibition flights on the Public Recreation Grounds at Burton-on-Trent before a fair-sized and enthusiastic audience. The loop was duly looped, and Mr. Hamel performed his repertoire of fancy flying. Later he flew to Hendon.

Mr. Hucks at Bradford.

On Wednesday, Thursday, Friday and Saturday, Mr. Hucks gave looping demonstrations at Bradford. On Wednesday he first flew his two-seater. Nine loops and a minute upside-down flight were made on the 50. The Lord and Lady Mayoress were present. On Thursday, in a big wind, Mr. Hucks reached 4,500 feet on the 80, and on the other machine he looped six times.

On Friday, in bad weather, Mr. Hucks made two loops and flew the two-seater. There had been tremendous crowds during the week, but all records were eclipsed on the Saturday.

Next Wednesday, Thursday, Friday, and Saturday, April 29 and 30, and on May 1 and 2, Mr. Hucks is due at Chesterfield Aerodrome, Ashgate Road.

Flying at Bognor.

Mr. Gordon Bell paid a surprise visit to Bognor on Monday of last week, and took the Curtiss Flying Boat out for about an hour. Mr. Whitehouse, the Handley Page pilot, was Mr. Bell's passenger. Mr. Whitehouse has been flying the boat some three or four days this week.—A. B.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

MULTI-CELLULAR AEROPLANE HAVING AUTOMATIC STABILITY APPARATUS.

THE Proprietor of the Patent No. 9,128 of 1911, and Patent of Addition No. 9,884 of 1911, for the above, is desirous of entering into arrangements by way of licence and otherwise on reasonable terms for the purpose of exploiting the same and ensuring their full development and practical working in this country.—Address all communications to HARRIS & MILLS, Chartered Patent Agents, 34-35, High Holborn, London, W.C.

TUITION.

VICKERS, LTD.—AVIATION SCHOOL, at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

THE CAUDRON SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best-equipped School, enquire what the Caudron pupils are doing.

THE BRITISH CAUDRON CO., LTD.,

London Aerodrome, Hendon.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE**.

LEARN to Fly at the Premier English Aviation School. Tuition given on Avro tractor biplanes, Blériot monoplanes, Caudron biplanes, Deperdussin monoplanes. Moderate inclusive fees, flying and constructional. **PASSENGER FLIGHTS AT MODERATE CHARGES.** Exhibitions of "looping the loop" and upside-down flying, etc., given by J. Lawrence Hall.—For full particulars apply to **HALL AVIATION Co., Aerodrome, Hendon, N.W.**

PASHLEY BROTHERS, SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIÈRE'S famous Integral Propellers hold all records; used by all leading aviators. The best. Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD., 1B, Elthorne Road, Upper Holloway, N.** Telephone: 912 North. Telegrams: "Aviprop, Uphole," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London.** Tel. 834 Bank.

BLÉRIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—**Box 533, THE AEROPLANE, 166 Piccadilly, W.**

EMPLOYMENT.

EXPERT motor mechanic of 10 years' experience will give services in return for tuition in flying.—**MILLARD, Engineer, Chesterfield.**

WANTED, first-class pilot; preferably with experience in hydro work.—**Box No. 504, THE AEROPLANE, 166, Piccadilly, W.**

WANTED, position as foreman of works or responsibility; good control over men; knows construction throughout; six years' experience all types; would travel anywhere; speaks French; has held responsible position last three years; conversant aero engines.—Please reply to **Box No. 562, THE AEROPLANE, 166, Piccadilly.**

PILOT-DESIGNER; experienced monoplane, biplane and waterplane pilot, has designed and built several successful machines; thorough practical and theoretical knowledge; requires berth in England or abroad.—**Box 563, THE AEROPLANE, 166, Piccadilly, W.**

DRAFTSMEN wanted; state experience fully. Also draughtsmen.—**A. V. ROE & Co., LTD., Manchester.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road.** Phone 4770 Wall

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.

MOISTURE PROOF.

Write for Price List and Particulars—
MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. DURATION MODEL, size 31 inches by 24 inches, price 5s. Flights of nearly 1-mile can be obtained with this model. We stock everything for models.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham.**

T. W. K. CLARKE & Co., Hampton Wick, Middlesex.

Phone: Kingston 869.

The Pioneer Aeronautical Model and Accessory Manufacturers, supply everything for the Model Aeroplane. Our **New Illustrated Models Catalogue** now ready, contains **Sopwith Tractor, Deperdussin, Blériot, Canard, Clarke Mono**, etc., all beautiful, well made machines, with full list of parts. Send 2d. for this and Accessory List. Clarke Propellers are perfection, 2d. per 1 in.; Elastic rod. per doz. yds.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,

AEROPLANE WORKS

AND

FLYING GROUNDS—

EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9, MINSTER-ON-SEA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

WONDERFUL "LOOPING" AND AIR RACING AT HENDON.

Every Thursday and Saturday, from 3.0 p.m.
(weather permitting).

TO-DAY

Thur. Ap. 30. BOMB DROPPING Competition.

NEXT SAT. May 2. SUMMER MEETING.

12 mile Speed Handicap.

Sat. May 9. MAY MEETING.

Sat. May 23. THE AERIAL DERBY

(for the "Daily Mail" Gold Cup and "Shell"
Prize of £400). Starts (4.15 p.m.) and finishes
at Hendon. Admission 1/-, 2/6, 5/-, 10/-.
Motors 5/- and 10/-.

Special Displays and Passenger Flights
every Sunday afternoon.

Passenger Flights daily from £2 2s. 0d.	
Admission 6d., 1s., 2/6	Motors 2/6
Children Half-price.	(Includes chauffeur.)

London Aerodrome, Hendon, N.W.

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: Phone—Kingsbury 130 (4 lines). Wires—"Volplane, Hyde, London."
LONDON: 166 Piccadilly, W. Phone—Mayfair 5355. Wires—"Claudigram, Piccadilly, London."



THIS is an illustration of the Cover of the 1914 Fixture List, which contains numerous illustrations of the Flying at Hendon, a complete list of Fixtures and Events for 1914, and particulars of Passenger Flights, Routes to Hendon, Season Tickets, etc. Free on application to Department A, London Aerodrome Offices, 166 Piccadilly, London, W.

"THE AEROPLANE," MAY 7, 1914.

THE AEROPLANE



Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, MAY 7, 1914.

No. 19

THE TOP DOG.



A snapshot on Southampton Water of the Wight Seaplane (200-h.p. Salmson), recently taken over by the Navy, flying over a torpedo boat.

The "Bristol" **Flying Schools**

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.

FILTON HOUSE, BRISTOL.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

Mr. W. Rowland Ding took his pilot's certificate after 3½ hours in the air, 14 days' actual training. During his test flights he reached an altitude of 1,150 feet, gliding down from this height with his engine cut off.

The Beatty method of training is the quickest and most thorough.

Tuition on Handley Page Monoplane & Wright Biplanes

£75.

Special terms to Naval and Military Officers.

(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying,

London Aerodrome,

Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.		ABROAD.	
	s. d.		s. d.
3 months, post free	1 8	3 months, post free	2 9
6 " " "	3 3	6 " " "	5 6
12 " " "	6 6	12 " " "	11 0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Beginning of the Aero Engine Competition.

The aero-engine competition for motors of British construction and material began officially on Monday last, and by now it is quite possible that some of the competitors know something about the weaknesses of their engines which they did not know before.

According to the official regulations the Tuesday after the Easter Bank Holiday was the last day for the delivery of the competing engines, but on that day, I am told, only eleven engines had been delivered. Consequently, an extension was allowed, and by Thursday of last week, April 30th, some eighteen or nineteen engines had been delivered. One cannot depend on the official list, which was published last week, for definite information on this point, because one engine which left its makers as an air-cooled motor is officially registered as water-cooled, and another which is rated as a 90-120-h.p. appears in the list as two separate engines, one of 90-h.p. and one of 120-h.p.

The arrangements for testing the engines, as an inspection on Saturday showed, are excellent, so far as details are concerned. Elsewhere, Mr. Sayers describes these at length. The various instruments specially designed for specific purposes, such as measuring the rate of petrol consumption, and so forth, are cleverly thought out and handily fitted for inspection. Great credit is due to the members of that portion of the staff at the Royal Aircraft Factory who are responsible for the production of special instruments. It will be remembered that at the time of the Military Aeroplane Competition in 1912, instruments for measuring the gliding angles of the machines were evolved by the same section of the R.A.F. staff, and operated excellently. Since then, numerous other measuring machines, such as those for indicating the loads on individual wires, have been evolved. Much valuable information has been acquired through the good work done in this department, and if its products were available, as they should be, for the use of independent aeroplane constructors, the progress of aviation would be considerably aided in this country. As it is, this ingenuity has merely been employed by others in the Factory for their own ends to enable them to criticise adversely the work of other aeroplane makers.

The Lay-out for the Tests.

When one comes to consider the general lay-out of the testing arrangements, there seems need for much criticism.

In a laudable endeavour to standardise the tests for every-one, all the test benches and their accompanying apparatus are built to the same height. Consequently, while they are excellently placed for the tall longitudinal engines, they are somewhat low for the 90 degree V engines, if a mechanic has to tinker with the valves, and for the radials they are obviously impossible. One notices this in the Salmson now on test, and it applies equally to the Anzani, and any other fixed radial. If it is necessary to get at a valve in one of the lower cylinders the engine will have to be taken off the bench bodily, and the shafting lined up again afterwards. Even to get at a plug or a water-joint or a drain-cock there is no room to use a spanner. It is a pity no one thought of this before. The only possible remedy now seems to be to dig a pit under the Salmson, and keep that cubicle specially for

the radials. The rotaries are all right, because they can be turned round and worked at from the top.

Another point is that the correct working of the draught from the fan is a very doubtful quantity. In an aeroplane the radiator is placed in front of the engine in the full draught, or above, or on each side of it, in some properly exposed position. In the test cubicles the radiator is behind the engine and badly blanketed by the engine and its fittings. Further, just behind the fan is the big stout pedestal of one of the shaft-bearings, which will cut off a lot of the draught along the floor, and deflect much necessary current from the lower cylinders of the fixed air-cooled radials. The Pitot tube of the air-speed indicator is fitted close behind the fan blades, apparently at about the right radius to get the maximum velocity, but unless another indicator is fitted somewhere near the radiator, or near the engine itself, in the case of an air-cooled engine, I do not quite see how it is possible to guarantee a 60-mile an hour draught at the right place. It seems quite possible that there may be a pocket all round the engine and radiator while the draught is simply tearing out along the sides of the tunnel.

Engine-cooling is a tricky business at high speeds, as the R.A.F. has found with the 120-h.p. Austro-Daimler "R.E.s" I gather that the radiators which cooled the engines too much in the winter, and had to be blanketed off to reduce the area, are now found to be too small, so that the engines tend to overheat on a hot day. Racing-car drivers at Brooklands found similar troubles quite a long time ago, but, unfortunately, did not transmit their experience to the R.A.F.

Presumably, as the Committees responsible for the engine tests desire above all things to be fair to everybody, they will not insist on an engine maker starting his 6 hours' tests until he has found out what size of radiator will keep his engine cool with the draught provided. Also, one hopes that the Committees will not regard the figures of the air-speed indicator as anything more than a gauge by which to keep the current, whatever it may happen to be, moderately constant. As an absolute measure the readings of the instrument, under existing conditions, must be as worthless as those of the average aerodrome "Ananiameter."

Running Shed Tribulations.

Six engines are to be tested at a time. These are all fixed on test-benches inside a single shed with a corrugated iron roof, each engine being in a separate compartment, a kind of cubicle. Such engines as can be silenced have their exhausts led to a pipe running into the outside air through the wall of the shed, but the unsilenceable engines exhaust in the shed itself. The exhaust gases will, of course, be blown out through the wind-tunnel in which the engine sits, but the noise inside the shed, with its sheet-iron tunnels and corrugated roof and partitions will be terrific. A far better and hardly more expensive arrangement would have been to have put each test-bench in a separate wooden hut, like those used in explosive factories. There is plenty of ground avail-able.

The effect of the present arrangement may be realised if one imagines oneself working on an engine, say, fixing one of a new batch in position, with a 200-h.p. Isaacson run-

ning—under the same tin roof remember—within ten feet of one on one side, and a 100-h.p. monosoupape Gnome the same distance away on the other. Eleven unfortunate officers, six from the Army, and five from the Navy, and a civilian from the Aeronautical Inspection Department, have been appointed as observers, two for each engine, presumably taking spells of an hour or so each. It hardly seems likely that any of these observers will survive the whole competition. At any rate, if any do so they will deserve a year's leave on full pay. It is bad enough having to watch one engine through its tests at close quarters, when one has occasional quiet moments during stoppages, but at Farnborough there will be five other engines either in full blast, or about to burst into song when one's own engine is standing still. By the time the tests are about half over, I should not be in the least surprised if an observer were to go mad and bite a competitor, or try to stuff him into the revolving fan.

Incidentally, it is hardly fair, supposing one engine of the six breaks down and withdraws, that the men fitting the next competitor's engine should have to work under such conditions. The racket is likely to interfere with the accuracy of their work. Anyhow, life in the test shed does not offer an alluring prospect.

On less important points some little attention is required. The rules say that any complaints, requests, or communications to the Committees, must be made in writing. Up to last Saturday, at any rate, there was no place where any writing could be done. Also, there was no lavatory accommodation provided, so that a man who had been grubbing about with his engine all day has, perforce, to remain dirty till he can spare time to go a mile or so to the nearest hotel. This may have its advantages, for it may perhaps prevent a competitor, semi-demented by the din in the shed, from cleaning away his surface dirt and dashing off a letter of complaint. By the time he has walked a mile, had a respectable wash, and discovered pen, ink, and paper, he may have returned to his right mind again.

However, no doubt the various Committees will attend to these little matters as they crop up, and, at any rate, competitors may always be assured of courteous treatment from any member of either Committee whom they may approach with a complaint.

The First Batch.

The six engines fortunate enough to be drawn in the ballot for the first six tests are all water-cooled. These are the Argyll, the Sunbeam, the E.N.V., the White and Poppe, the 90-h.p. Salmson, and the Wolseley.

The Argyll, a single-sleeve valve, 6-cylinder vertical, looks a beautiful piece of work, being a more finished job than when seen at Olympia. There is a heap of weight to be got off it, if the makers find that the prospects of orders make it worth their while to go more deeply into aero-engine work, but even as it is, the cleanness of the design and workmanship gives one confidence in the engine. I hope to see it do itself full justice in the tests, for there is something very enticing about the notion of not having any valves to worry one.

The Sunbeam, an 8-cylinder V type engine, is another nice, cleanly finished piece of work, and judging by the experimental engine used by Mr. Alcock on the Sunbeam-Farman at Brooklands, it should give a good account of itself. The latter engine is now going to the works for its first overhaul after 230 hours' flying, apart from running on the ground, in which time the cylinders have once been off to have the carbon deposit scraped out. This augurs well for the competition engine.

The E.N.V. is also an 8-cylinder V, but of peculiar design. The cam-shaft between the two rows of cylinders is raised to a level with the cylinder-heads in which the valves are set horizontally with their stems projecting inwards to the cam-shaft. The valve caps are thus on the outside of the engine, and so should facilitate access, only, of course, when one comes to fit the engine to an aeroplane one is sure to find that a fuselage upright, or a main plane strut, neatly covers a valve cap. The rows of cylinders are set at 90 degrees, and with all the valve-gear spread out between them the engine in plan view gives one an impression of a crab lying on its

back and kicking. The finish of the engine is good, but in the absence of published tests and with a knowledge of the early E.N.V.'s peculiarities one hesitates to prophesy about its performances.

The White and Poppe is yet another 8-cylinder V engine, with a central cam-shaft inside the crank-case and long push-rods to the rockers of the overhead valves. It is a nice clean, easily understood engine, and judging by recent experiences of White and Poppe high-speed motors, it should put up a good show. Mr. Poppe has had a very long experience of internal combustion engines, and has succeeded in making what I remember as a very small business into a big one, so there is reason to have confidence in his products.

The Salmson is the usual water-cooled radial which has done such good service wherever it has been used. This 90-h.p. is, of course, a mere baby compared with the 200-h.p. which will be tested later, and it will give the observers a foretaste of pleasures to come. The Dudbridge Ironworks seem to have made a thoroughly good job of it, and the test runs it has already made justify faith in its future performances. As a matter of experience, a 90-h.p. water-cooled engine is on the small side for aeroplane work, for the lighter air-cooled engines seem to operate well up to 110-h.p. or so, and, therefore, greater interest will attach to the firm's bigger engine. Nevertheless, this engine will give a measure of the Dudbridge Company's success in their first essay in the building of light petrol engines. One wishes them a happy issue.

The last of the six is the Wolseley, another water-cooled 8-cylinder V, with overhead valves and push-rods from a central cam-shaft. In this case also, absence of published tests makes it impossible to gauge the engine's chances. One recalls that the first really successful aeroplane built by the R.A.F., the B.E.1 had a Wolseley engine. Beyond that, and a pre-historic Voisin flown by de Baeder, one does not recollect a Wolseley-driven aeroplane. The firm's engines have, however, been successful in motor-boats, which are a test of reliability if not of weight for power. This test engine reminds one somehow of a French locomotive. There is an old saying among locomotive men that when a French engineer wants to improve his engine he puts something onto it, but when an Englishman wants to improve his engine he takes something off it. The Wolseley engine seems to have been evolved by putting things on its outside. This probably makes for accessibility of parts and easy renewal in case of damage, though it detracts from the neatness of the job, as do the numerous screw-heads which hold the water-jackets to the cylinder-heads. Also it gives the engine a heavy appearance. However, if it does well in practice the outside appearance will not matter much.

Probably in a week or two we shall know more about these things, and perhaps some of the competitors will know more about the insides of their engines.

The Management of the Competition.

When it was announced that the Navy and Army were to hold a competition in conjunction with the intention of encouraging the production of British engines, I had great hopes that the way had been discovered to a happy issue out of all our afflictions, and that it would go through without anyone having to avail himself of the Englishman's time-honoured privilege of grumbling. Unfortunately, the competition seems to have started with grumbles.

First of all, the ill-advised booming of the R.A.F. engine as "the Government's insurance" by some tactless person who apparently thinks more of his own interests than of the progress of British aviation, has got the hacks of the competitors up against the management of the competition. Of course, they do not admit it to the competition officials, but the feeling of irritation is there, and it is most regrettable. It was a mistake, in the first place, to hold the competition within the Factory precincts, for it only accentuates the idea that the R.A.F. is running the show for its own advantage, and intends to wear out the competitors' engines, and patience, so as to obtain informative data for their own profit. The R.A.F. already stinks in the nostrils (this is a Biblical phrase, please remember) of the motor manufacturer as badly as it does in those of the aeroplane maker, and all



LEARN TO FLY

at the

VICKERS FLYING SCHOOL

BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

VICKERS LIMITED,
 Aviation Department, Vickers House,
 Broadway, Westminster, S.W.



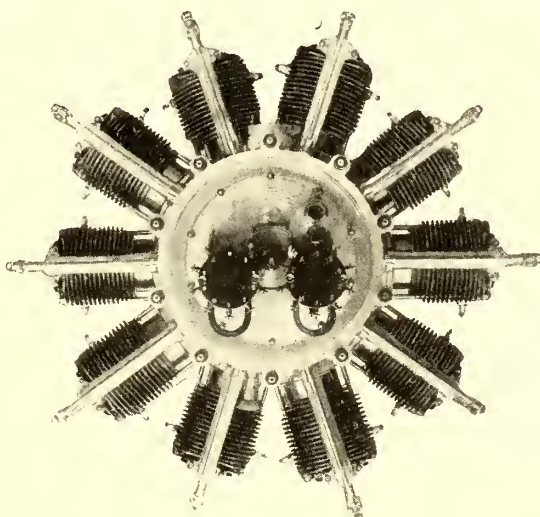
BRITISH ANZANI

AERO

ENGINES

The 125 h.p.

10-Cylinder



Wires :
 "Anzani, Piccy, London."

Phone :
 280 Gerrard.

THE BRITISH ANZANI ENGINE CO. LTD.
 30, REGENT STREET, PICCADILLY CIRCUS, LONDON, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

because of the tactlessness of a few of its staff. If the competition could have been held at Woolwich, or Chatham, or at any other place under purely naval and military control all might have been well, but, although it is as purely out of civilian control as if it had been held elsewhere, the locality is tainted. I only hope it will be possible to remove the unfortunate impression that when the competitors leave their cubicles a horde of Factory officials immediately swoop down upon their engines armed with rules, calipers, micrometers, and note-books.

Still, in this connection, one would like to know how it came about that last week, when certain journalists desired to acquire information from the Managing Committee and were very properly told that the rules prohibited any information being given except on Saturday, the official Press day, a representative of one paper, which has done much to boom the products of the Factory, including the "R.A.F. engine," and has studiously ignored the progress made by British aeroplane makers, was admitted to the sacred precincts by an official of the R.A.F. and permitted to obtain all the information he required. Perhaps some of the Naval and Military authorities will inquire into this little matter. Either the competition is to be run in the proper Service spirit of a fair field and no favour, or it is not. Some of us would like to know.

I had hoped to have been able to go straight to some properly-appointed official for information, to obtain it openly and above board, and to do without back-stair methods of obtaining it, but at present this seems impossible. A singularly incorrect list of competing engines was issued as a War Office communiqué a day too late for this paper to use it at the right time, though the information could have been given verbally many days earlier if there had been anyone with authority to give it. By "nosing about" a little one could have got the information otherwise, but that is precisely what one wants to avoid. During the Military Aeroplane Competition of 1912, if one wanted information as to the progress of each machine there was a notice-board, kept constantly up to date outside the judges' office, and beyond that one could always go direct to one of the judges, or to Major Sykes, the secretary, and obtain news in more detail. In the "R.A.F. Engine Competition," as it will come to be called if the management is not careful, official information is only available on Saturdays between 9.30 a.m. and 12.30 p.m. Now, what Pressman on earth wants to go to Farnborough on a Saturday morning? And what chance have British engines of receiving any notice in Monday morning's papers when all the space is required for cricket, and when the odd corners available for aeronautics are occupied by the accumulation of two days' reports of foreign aviators' deaths and alleged British purchases of foreign aeroplanes. You see, the British Industry never has a chance.

It might have saved trouble also if it had been intimated on the press passes that information could only be given on Saturday mornings. As it was, certain representatives of technical papers arrived after 12.30 last Saturday, and it was only by the courtesy of an officer of the Managing Committee who gave up his lawful Saturday afternoon's rest to them that they were able to see the six competing engines.

A Quaint Beginning.

Another little error somewhere at the War Office resulted in a notice being sent out that responsible officials of the competing firms were to report themselves at Farnborough on Thursday last. As a result a number of busy men arrived there only to be met by sundry somewhat amazed members of the Managing Committee who were unable to explain why the competitors had been summoned. No one at Farnborough apparently knew they were coming and there was nothing to tell them when they came. It seemed that "Engines to right of them, engines to left of them. Someone had blundered." The only consolation was that those whose engines were not among the lucky first six were not so annoyed as if the said six had "volleyed and thundered" when they arrived. That would, indeed, have added insult to injury. One engineer had come specially from Leeds and another from Paris solely on account of the War Office mistake. However, they were finally pacified and sent on their way, if not exactly rejoicing, at

any rate appeased, by a tactful naval officer who spoke to them as men and brothers, and not as mere engine-mongers at the beck and call of Government officials, which might have been the case if the performance had been under certain civilian control.

Information Wanted.

There are several points in the competition on which information is wanted, owing to the lack of a definite programme. In the Military Aeroplane Competition each machine had set tasks to perform, and when they were done the competitors knew where they were. In this competition no one seems to know the how, why, or what of anything, except that two 6-hour non-stop runs must be done. It would help the other competitors materially in making business arrangements if they knew whether the first six are to go through many other tests, and what tests, after completing their six hours' non-stop. At present no one knows whether they will be called upon to fit up their engines next week or next month. If some definite programme of tests were published it would at least give some vague idea of the time each engine will be occupying its cubicle, and also it would enable everyone interested in the competition, among whom are all the aeroplane makers in this country, and a good many abroad, to form some idea of the relative values of the engines.

Further, if the performances of the engines on test were published officially at least once a week it would assist still further to make up the minds of possible purchasers. If the results of all tests are withheld till the whole lot have been tested, and till the Judges' Committee has sat upon the Managing Committee's reports, and till the Army Council and my Lords of the Admiralty have considered the Judges' awards, and till His Majesty's Stationery Office has authorised the printing of the various documents, and the official proofs have been further sat upon and considered and passed by the War Office and Admiralty, and the Official Publishers have been authorised to produce them as a White Paper, or a Blue Book, or a yellow-back novel, or as a feuilleton in the "Daily Mail"—one feels doubtful after one's experience of the Monoplane Committee's Report, which took six months to appear after the Committee had done with it—the unfortunate engines will be obsolete, and more thousands of pounds of good British money will have gone abroad for foreign engines.

In the Military Aeroplane Competition a highly efficient Triumvirate ran the whole show. In this competition there are enough committeemen to run the whole British Empire, and it is an unfortunate fact—*vide* any elected or appointed body you please—that the efficiency of any individual member of a committee is in the inverse ratio of the number of persons on that committee. A man who can run a colonial province as big as England on his own account with perfect efficiency cannot administrate a parish pump as a member of a rural district council, and the analogy holds elsewhere. That is why the Army as a whole is crying out for a Commander-in-Chief instead of the present Army Council. There is still a good deal of truth in the old adage that "too many cooks spoil the broth." It is far truer than that "in a multitude of counsellors there is wisdom." The only use a wise man has for a multitude of counsellors is to listen to their opinions and act on his own judgment.

However, there is hope that in the course of a week or two the various committees dealing with the engine competition may perceive some of the snags which prevent things from working smoothly, and that it may then be possible to obtain really useful results. The greatest need at present is for a Competition Manager to say "yes" or "no" to all and sundry inquirers, and someone under him to tabulate and publish the results of the tests so that aeroplane and engine builders may know what is really going on. Doubtless the R.A.F. and the "Daily Mail" are not interested in the welfare of British aeroplane and engine builders, but there are quite a number of officers in the King's Services who believe such people to have their uses in the world, and, after all, the opinion of these officers is worth something, for some of them have to fly the aeroplanes which result. It is for the benefit of those officers, before anyone else, that we on this paper want to know what is going on.—C. G. G.

THE BEARDMORE AUSTRO-DAIMLER DESIGN AERO ENGINE —: WINS THE:— **£5,000**

Prize offered by the Schicht Co. of Austria, to the
winner of a circular flight extending over three days,

Proving it yet again to be

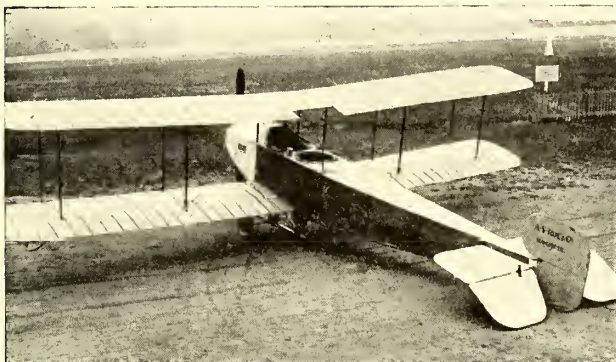
THE WORLD'S FINEST AEROPLANE ENGINE.

BEARDMORE AUSTRO-DAIMLER AERO ENGINE, LTD.
36, VICTORIA STREET, LONDON, S.W.

Selling Representatives:—

AUSTRIAN-DAIMLER MOTOR CO., LTD.
112, GREAT PORTLAND STREET, LONDON, W.

C.D.C.



THE 1911 AVRO.

THE 1911 AVRO

the forerunner of the present
day machine.

Its general outline is accepted
as the standard of aeroplane
design all over the world.

SEE THE RECORD - BREAKING

1914 AVRO NOTHING BETTER

The LAST WORD in Aeroplane Construction.

A. V. ROE & Co., Ltd.

Contractors to the Admiralty, War Office, and Foreign Governments.

Clifton Street, Miles Platting, MANCHESTER.

Telegrams: "TRIPLANE, MANCHESTER."

Telephone: 337 FAILSWORTH.

Local Training.—(Continued.)**BY W. E. de B. WHITTAKER.**

In the issue of this paper for April 9th I wrote an article on "A Reserve for the Royal Flying Corps," in which it was suggested that a number of pilots should be retained for the Government by means of a small fee rather after the manner of the now defunct Army Motor Service, but with no army rank. Such a suggestion may appear to contradict the theory of this present article, which in truth it does not do. A Territorial section of the R.F.C. would tap a class of man untouched by any previous scheme. In the suggested Reserve only practised pilots were contemplated or admitted. In the Territorial scheme a number of entirely inexperienced men would receive training as pilots paying for their tuition in kind rather than in cash.

To supplement the Regular Army in Great Britain there is a Territorial Force of fourteen Divisions and fourteen Mounted Brigades with complementary Army Troops. In theory this force, the gigantic invention of the Viscount Haldane, is supposed to form a self-contained army, capable of defending a position if not of taking the offensive. In truth it is not capable of acting by itself nor is there any serious intention of ever using it in such a manner. The Territorial troops in time of war would most probably be used as drafts to complete the establishment of corps in the first line after the losses of an action or of disease. In times of peace it is not without its uses. No bazaar opened by a Duchess would be truly picturesque without its escort of Territorial Infantry.

The Territorial Force is a last resort. It is the last fount of partly trained men in the country. There is no further adequate reserve. Treating it as such it should have within itself reserves for all arms of the Service. Consequently some attempt might be made to provide a Territorial Flying Corps. This has frequently been suggested before, as was only natural, but in each case the difficulties were much underestimated.

The War Office, harassed as it is by lack of money in the Regular Forces, does not care to embark on extensive fresh expenditure in the Territorial Service, the more so because that force is recognised to be a huge failure. Such as it is, the force is as efficient as the material will permit, but its numbers are much below the magnitude of its establishment. The formation of territorial squadrons of the R.F.C. would cost a large sum of money initially. There is the renting or buying of ground suitable for training purposes and the purchase of a sufficient number of aeroplanes and spare parts. Beyond that payments to the Permanent Staff would be none too small.

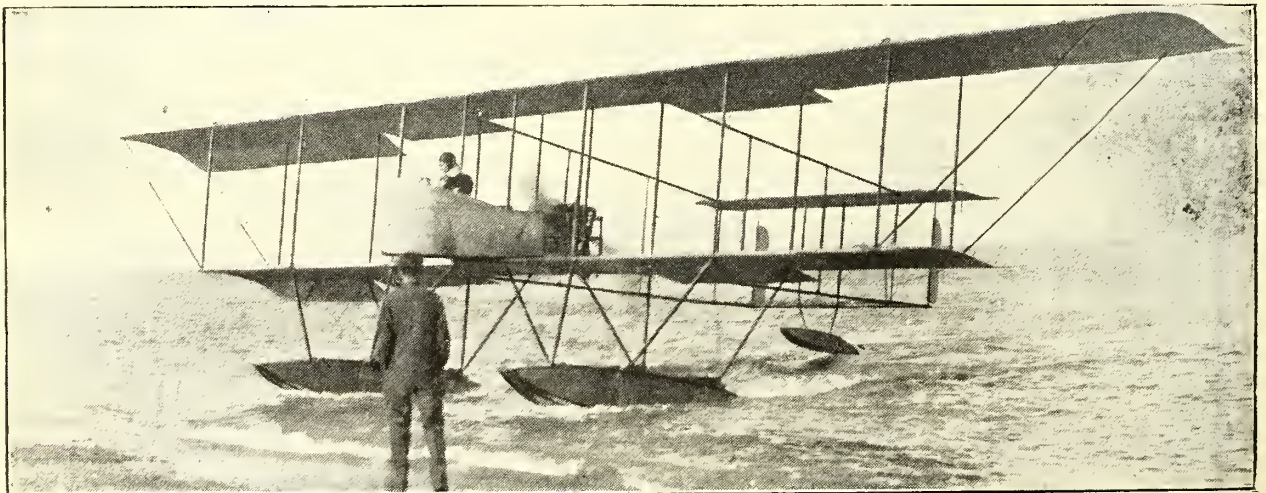
The purchase of ground would, on the other hand, be pure gain to the Army in general, as it would provide landing grounds for the Royal Flying Corps' regular squadrons—a provision which is much needed. No doubt the use of local race courses would be permitted. In such places where there are in existence properly planned aerodromes the whole difficulty is much reduced. One town, Nuneaton, possesses a landing ground laid out for the use of all aviators passing that way. Mr. Melly, a local resident, paid all the expenses without any intention of making money. What one man has done in one place surely communities can do elsewhere! The sheds erected for use by the local corps would house the machines of a regular squadron making a route flight.

All aeroplanes bought by the local corps would be just as much reserves to the first line as the men flying them. They would be of types approved by the Inspection Department, with parts properly interchangeable. The spare parts maintained would, should war render life less uninteresting, be of great use to military machines flying in the district.

The initial expense would be by far the greatest. No new ground would need to be purchased because some excited pupil made a mistake in landing. The aeroplanes, in spite of local enthusiasm, would not be broken as fast as they would be purchased or repaired. The practice in repairs alone would be of the very highest value in turning out a corps of pilots, whose only value would be that they were aviators with a little military training.

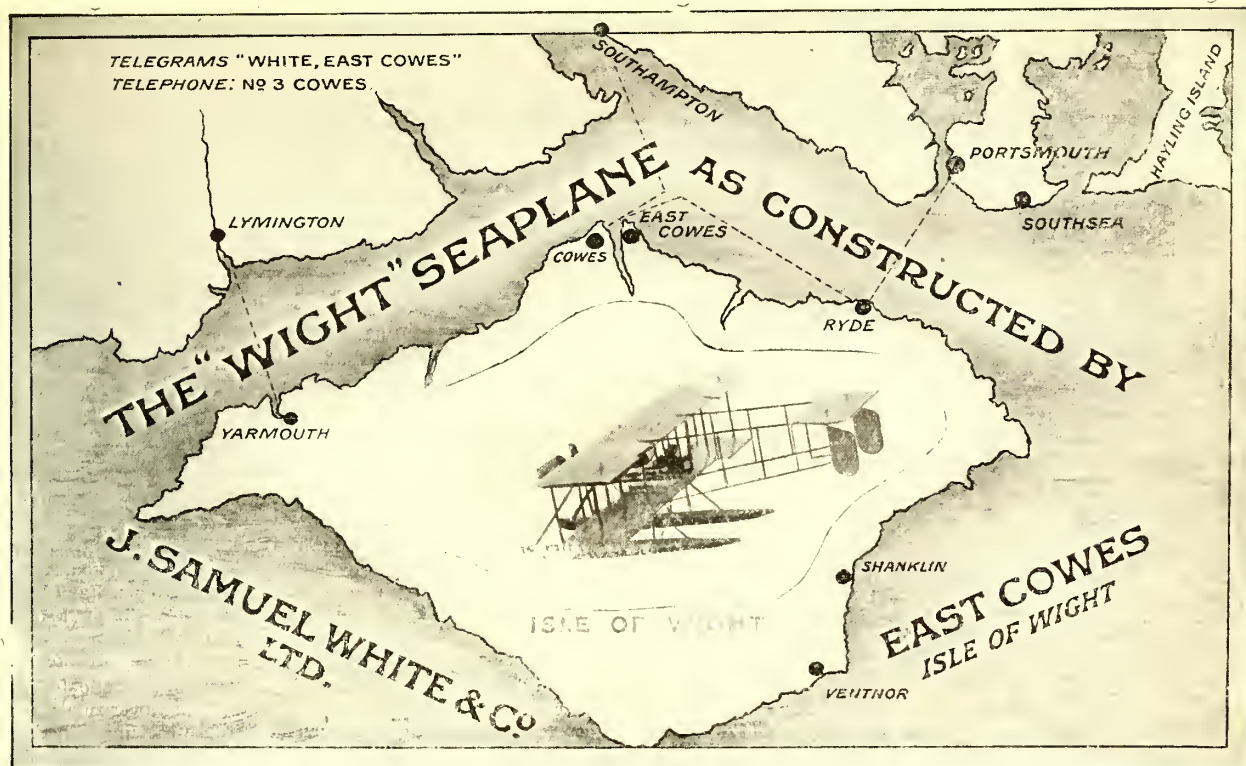
In the Regular Service one of the principal expenses in forming a squadron of the flying corps is the provision of adequate transport. Such transport would be unnecessary in the Territorial Force. The wear and tear on transport wagons is not very high as compared with that on aeroplanes. When the local aeroplane is used as a reserve for the Regular Service it is because the first line reserve aeroplane is no more. Therefore the transport available for that aeroplane can be used for the incoming machine. Again, no real training in transport work could be given to the Territorial air-mechanics or officers except in the period of annual training, when it could be arranged that wagons are temporarily available.

The permanent staff would need the most careful thought of all. A highly technical corps, in that mistakes result in men's deaths, the O.C. each squadron would necessarily be an officer on the active list. He would be responsible for the detail of training which would have been laid down on broad



Photograph by G. W. Stone, Gorseston.

Lieut. Bone, R.N., coming ashore at Yarmouth on a Maurice Farman (Renault engine) which is now fitted with sprung floats.



THE
Monk Engineering Co.,
LTD.

High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES?

CONTRACTORS TO THE
ADMIRALTY & WAR OFFICE.

Dudbridge Iron Works L^{td}.

STROUD, GLOS,

Makers and Sole Concessionaires for the
British Empire for the

Salmson
AERO - ENGINES.

Sizes from 80 B.H.P. to 300 B.H.P.
IN SINGLE UNITS.

London Office: 87 Victoria St.,
London, S.W.

Telephone—7026 Vict. Telegraph—Aeroflight, Vic. London.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

lines by the Army Council. Each squadron would require a regular adjutant, who should, if no technical officer were provided, be of considerable technical efficiency capable of judging whether an aeroplane be in a reasonably safe condition or not. He would in cases of doubt have a right of appeal to the Inspection Department. A number of N.C.O.'s permanently attached would be required, and, most important of all, it would be necessary to have several regular air-mechanics attached that the machines might be kept in proper order from day to day.

Officers of this corps would be drawn from those men who, if in other ways suitable, would pay the expenses attached to their training as a pilot and all other incidental charges, such as uniforms and so on. They would be expected to do a fortnight a year attached to a regular squadron and a fortnight a year with their own unit. The rank and file would be composed of those men who were unable to pay their own initial expenses. They would have been required to serve for one year in a Territorial line unit before being qualified for free training as a pilot. Then having become a pilot and an air-mechanic in the local squadron they would have to undertake, under penalty, to serve two years in the Royal Flying Corps (Territorial).

Pay throughout these squadrons would be at exactly the same rate as that common in the first line, but, of course, would only be payable during the annual training period.

Any pilots of high excellence desiring to be posted permanently to a regular unit might be permitted to do so on specified conditions. In these cases they would be exempted from the three months' course at Upavon. Each pilot accepted as an officer attached to a regular unit would be expected to pass through a course at Farnborough lasting perhaps a month. During this course training would be given in those matters essential to the life of a soldier. The rest would be picked up with sufficient rapidity during service with the squadron.

As to preliminary training, the assistance of any local fly-

ing school might be called upon. The Government capitalisation grant of £75 per pilot would be more than sufficient to cover expenses. Any further expenditure incurred by a recruit's failure as an aviator would be guaranteed by a local committee.

In such places as are not possessed of flying schools the squadron would have to train its own men. An instruction staff would be employed and paid by the same local committee, who would guarantee any losses. As is easily demonstrable, the losses need not be high if proper attention is paid to detail and so long as the training centre is not started on too elaborate a scale.

The War Office would, of course, undertake to cover all expenses connected with maintenance of the local squadron that were not covered by local generosity—if any.

The aeroplanes used should, as far as possible, be those built locally, provided those types are already in use in the service, and are approved by the Inspection Department. For instance, Lancashire squadrons might be equipped with Avros, West Country squadrons with Bristols, and Hampshire squadrons with Wights. It would promote the building of aeroplanes in certain localities and would afford some support to the local aviation industry.

This spreading of aviation into the most curious nooks of the kingdom, to places where business is the only god, would do much to popularise aviation amongst the people. Familiarity with flying would teach the populace many lessons both as to the safety of aeroplanes and the instability of aviators. When a man does not understand a thing he invariably dislikes it.

It might also have some strange effect on patriotic feeling. To see a part of the country's defences flying over one's back garden is a noble sight calculated to rouse the finest instincts in man. So long as the local aviator preserved a judicious attitude as to miscellaneous landings there is no reason why he should not become as popular as the local mayor when he wears his triumphal collar.

The Royal Aero Club.

At the committee meeting on April 28th the following aviators' certificates were granted:—762, 2nd Lieut. John Bruce Bolitho (Devonshire Regiment) (Bristol biplane, Bristol School, Salisbury Plain), April 15th, 1914; 763, Prince Leon Sapieha de Koden (Austrian subject) (Grahame-White biplane, Grahame-White School, Hendon), April 15th, 1914; 764, 2nd Lieut. John Bower Harman, R.F.A. (Bristol biplane, Bristol School, Salisbury Plain), April 15th, 1914; 765 (hydro-aeroplane), Oswald Lancaster (hydro-aeroplane, Lakes Flying Co., Lake Windermere), April 15th, 1914; 766, Comte Jacques de Fitz-James (Vickers biplane, Vickers School, Brooklands), April 15th, 1914 (subject to permission of Aero-Club de France); 767, Ernest Victor Samuel Wilberforce (Vickers biplane, Vickers School, Brooklands), April 16th, 1914; 768, Mark Dawson (Vickers biplane, Vickers School, Brooklands), April 16th, 1914; 769, George Carruthers (Caudron biplane, Ewen School, Hendon), April 21st, 1914; 770, Geoffrey Charles Gould (Blériot monoplane, Blériot School, Hendon), April 21st, 1914; 771, Lieut. Philip Stafford Myburgh, R.F.A. (Bristol biplane, Bristol School, Salisbury Plain), April 21st, 1914; 772, Lieut. Reynell Henry Verney, A.S.C. (Caudron biplane, Ewen School, Hendon), April 22nd, 1914; 773, Lieut. William Henry Dyke Acland (Vickers biplane, Vickers School, Brooklands), April 22nd, 1914.

On the motion of Mr. Mervyn O'Gorman, C.B., seconded by Mr. Frank McClean, it was unanimously resolved to recommend to the Fédération Aéronautique Internationale at its next meeting that the age limit be reduced from 18 years to 17 years.

The report of the National Physical Laboratory on the barographs used by Eng.-Lieut. E. F. Briggs, R.N., in his flight on a Blériot monoplane (80-h.p. Le Rhone engine) on March 11th, 1914, at Eastchurch, was considered. It was unanimously resolved that the British altitude record for pilot alone be granted to Eng.-Lieut. E. F. Briggs, R.N., the height accomplished being 14,920 ft. The previous record was held by Capt. J. M. Salmond, R.F.C., being 13,140 ft.

The following official timekeepers were appointed for the year 1914:—F. T. Bidlake, J. H. Burley, A. Deacon, T. D. Dutton, A. V. Ebbelwhite, A. Fattorini, C. P. Glazebrook, H. Hewitt Griffin, A. G. Reynolds, Z. Wheatley.

The committee had before them reports received from the Brooklands Automobile Racing Club regarding the flying of Mr. C. F. Lan-Davis over the public enclosures at Brooklands at a low altitude on Saturday, April 11th, 1914. Mr. Davis was called to explain the circumstances. The committee found that the flying was of a nature which endangered the public and showed great lack of judgment. Taking into consideration his limited experience, the committee decided to confine the punishment to a severe censure and to caution him as to his future flying.

In Honour of the Schneider Cup Win.

To celebrate the British victory at Monaco on April 20th, 1914, the Royal Aero Club will entertain Mr. T. O. M. Sopwith and Mr. Howard Pixton to luncheon at the Royal Automobile Club, Pall Mall, S.W. (by kind permission), on Tuesday, May 12th, 1914, at 1.15 p.m.

The Marquess of Tullibardine, M.V.O., D.S.O., M.P., the chairman of the Club, will preside.

In order to facilitate the arrangements, members are requested to notify the secretary as early as possible if it is their intention to be present.

Tickets, inclusive of wines, 10s. 6d. each.

Members are notified that on this occasion they may be accompanied by one guest only.—HAROLD E. PERRIN, Sec.

A New Aeroplane Firm.

It is reported on good authority that Beardmore, Ltd., of Glasgow, are now embarking on the aeroplane business as well as making Austro-Daimler engines. It is said that a branch of the great firm, with Mr. Cecil Kny as technical manager, has taken the old skating rink at Twickenham, close to Richmond Bridge, and will there make aeroplanes of a type similar to the D.F.W. One wishes the firm every success in its new venture.

Naval and Military Aeronautics.

GREAT BRITAIN.

NAVAL.

Appointments.—The following appointments were made at the Admiralty on April 28th:—

Lieut. A. B. Gaskell lent to Central Flying School as Assistant Instructor, to date May 6th.

Sub-Lieut., R.N.R.—R. E. C. Peirse lent to Central Flying School as Assistant Instructor, to date May 6th.

The following appointment was made at the Admiralty on May 4th:—Sub-Lieut. R. Wright, to the "President," additional, for course of instruction at the Central Flying School, to date May 12th.

The marriage arranged between Lieut. E. T. R. Chambers, R.N. (Naval Air Service), and Miss Marjorie Mair will take place on Wednesday, June 3rd, at St. Mary's Church, South Baddesley, and the reception afterwards will be held by the Hon. Mrs. Whitaker at Pylewell Park, Lymington, Hants.

It is stated, on usually good authority, that a Naval Air Station is to be established at Portland.

It is reported in the "Observer" that notices have been issued, presumably by the Admiralty, forbidding the taking of photographs of shore-defence works and restricting the photography of naval aeroplanes to general views. The use of telephoto lenses is also forbidden. This, of course, is quite as it should be, for it is obviously undesirable that photographs showing how our wireless apparatus is fitted, or how guns or bomb-tubes are placed, should be circulated broadcast. One is therefore inclined to wonder whether Calshot Air Station is the best place for experimental work, seeing that Southampton Water swarms with foreign shipping and that no restriction can be placed on operations of photographers with telephoto lenses on German or other liners.

The second Wight seaplane (200-h.p. Salmson engine) was put through its tests for the Navy by Mr. Gordon England at Calshot on Friday last. Owing to bad weather, the 3,000-ft. climb was taken more slowly than with the first machine, the time being 8½ mins. Her indicated speed was identical with that of the first machine. This is the machine which was shown at Olympia, but her planes have since been recovered and she has been fitted with wheel-control. Prior to her passing through her tests, two of the directors of J. Samuel White and Co., Ltd., made their first flights in this machine, thus showing their confidence in the latest branch of their business. On one occasion a cinematograph operator, the same who accompanied Mr. Hucks across the Channel as escort to the Royal yacht, was taken up on one of the floats, from which somewhat damp position he took pictures of the behaviour of the floats on the water, both starting and alighting.

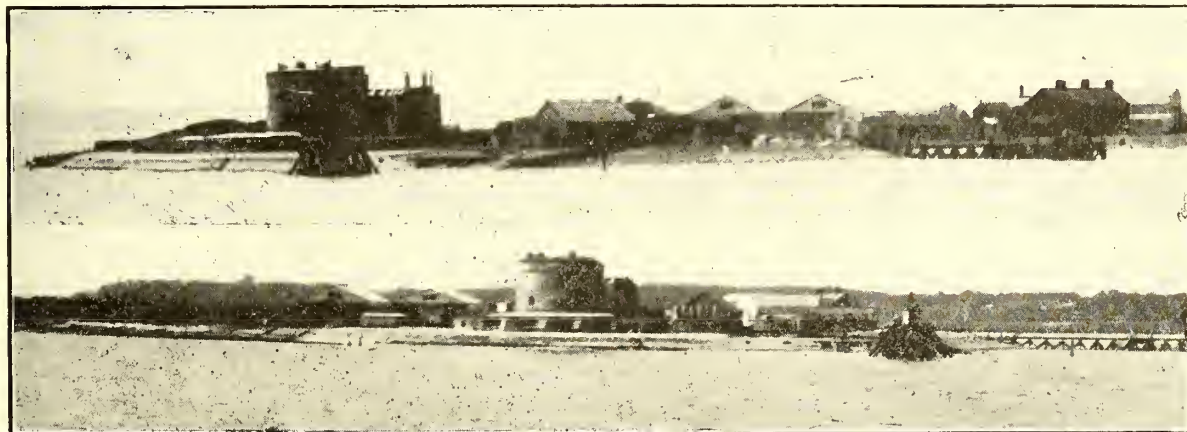
On Monday last, at Calshot, Mr. H. Pixton put another Sopwith seaplane (100-h.p. Anzani) for the Greek navy through its tests, climbing 3,000 ft. in 17 mins. with full load. The tail of these machines has been lengthened and the rudder and elevators increased in area. On Tuesday, Lieut. Creswell, R.M.L.I., was out on the Wight machine, flying morning and afternoon. Lieut. Ross, R.N., was out on the Sopwith "Taxi," and on Thursday the Sopwith hydro was out in morning and afternoon. On Friday, Mr. Gordon England put the second Wight through its tests.

At Eastchurch on Monday Shorts Nos. 2 and 34 (50 Gnomes), Sopwith No. 104 (80 Gnome), Caudron No. 40 (50-h.p.), and B.E. No. 49 (70-h.p. Renault) were out. Shorts Nos. 2 and 65 (50 and 80 Gnomes), and Deperdussin No. 36 (70 Anzani) were flying on Tuesday. On Wednesday Short No. 34 and Henri Farman No. 31 (70 Gnome) were out, and Comdr. Samson, R.N. (B.E. No. 50), Lieut. Osmond, R.N. (B.E. 49), Lieut. Peirse, R.N.R. (Aero 16), Lieut. Marix, R.N.R. (Sopwith 104), Lieut. Davis, R.N. (Short 66), Capt. Courtney, R.M.L.I. (Deperdussin No. 36) were out scouting. Mr. Goodden handing over a rebuilt Caudron (70 Gnome) to the Navy on this day, looping thereon five times to demonstrate the qualities of the standard machine.

On Thursday scouting practice continued, Comdr. Samson (B.E. No. 30), Capt. Courtney (Dep. No. 36), Lieut. Dalrymple-Clark, R.N.R. (Caudron No. 40), Asst.-Paymr. Finch-Noyes, R.N. (H. Farman No. 31), Lieut. Osmond (B.E. 49), Lieut. Marix (Sopwith 104), Lieut. Peirse (Avro No. 16), and Pte. Edmunds, R.M.L.I. (Short No. 34), taking part. Wind prevented flying on Friday.

On Saturday Comdr. Samson on B.E. 50 left for Brooklands and returned later. Eng.-Lieut. Briggs, R.N., on Blériot 39 (80 Le Rhone) also flew to Brooklands, going on later to Farnborough, and Lieut. Marix on Sopwith 104 also started for Brooklands.

Flying was resumed at Dundee on Saturday, May 2nd, and the Short tractor 100-h.p. Gnome No. 74 was out from eleven to four. Major Gordon, R.M.L.I., made the first flight with A.M. Johnstone as passenger. He flew up and down the river for 24 mins. Capt. Barnby, R.M.L.I., then boarded the seaplane with A.M. Wellburn, and flew the same course as the previous flight for 40 mins. Major Gordon again took the Short, and, after flying down the river for some time, turned the machine south and flew to St. Andrews. An hour later he returned, and landed before the slipway. Capt. Barnby then made his second flight, accompanied by A.M. Noonan, and flew from between the Tay Bridge and Broughty Ferry. After keeping up this circuit for an hour he descended and handed the machine over to Major Gordon, who made the last flight of the day, being in the air about 20 mins.



Two views of Calshot Air Station, taken from the Cowes-Southampton boat to illustrate the impossibility of preventing the photographing of shore-defence works.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of Work for week ending April 25th, 1914:—

No. 2 Squadron (Montrose).—The pilots of all three "flights" were out daily making reconnaissances, amongst other places to Edinburgh and Berwick, to select landing grounds. Lieut. Dawes flew from Farnborough to Montrose on Monday the 20th, landing twice en route to fill up with petrol. His machine was a 70 Renault B.E. Lieut. Empson arrived at Montrose on Friday 24th inst., on a Maurice Farman, having left Farnborough two days previously.

No. 3 Squadron (Netheravon).—In "C" Flight alone 2,000 miles were covered during the week. A reconnaissance scheme in conjunction with the Royal Engineers was carried out, and successful experiments with aerial photography were continued.

No. 4 Squadron (Netheravon).—Numerous flights were made daily, including several by Warrant and Non-Commissioned Officers. The workshops are now being fitted up with power driven plant.

No. 5 Squadron (S. Farnborough).—The squadron was engaged throughout the week on a practice mobilisation. On Thursday the 23rd the squadron was fully mobilised and was inspected by the Director-General of Military Aeronautics and by Aldershot Command Headquarter Staff. De-mobilisation commenced on Friday.

No. 6 Squadron (S. Farnborough).—Reconnaissance flights over the country round Aldershot were carried out daily.

Flying Depot (S. Farnborough).—The Flying Depot was fully occupied with repair work to aircraft and mechanical transport, with assisting the Aeronautical Inspection Department, and the technical training of recruits.

Headquarter Flight (S. Farnborough).—Much flying was done in connection with experimental work. Numerous kite and free balloon ascents were also made.

War Office, April 28th, 1914.

It is reported that Capt. Longcroft is to be given command of No. 1 Squadron, Royal Flying Corps (formerly airships and kites), on its re-formation as an aeroplane squadron. Capt. Longcroft has long been known as one of the most efficient pilots of the Royal Flying Corps, and holds the British cross-country records for distance, both with and without a passenger. Apart from being an excellent pilot, he is a highly efficient officer, and is liked and respected by his men. Our Montrose correspondent writes: "He will ever be remembered by the public at Montrose, as his name is a proverb, even with the children, and every machine which passes overhead is credited to be flown by him." Capt. Longcroft took his pilot's certificate, No. 192 (March 5th, 1912), at Brooklands as a pupil of the Bristol School.

The engagement is announced of Capt. Henry Hammond Shott, D.S.O., Royal Berkshire Regiment, and Hazel Morris, only daughter of Mr. and Mrs. Harold Brown, of 245, North Broadway, Yonkers, New York. Capt. Shott took his R.Ae.C. certificate, No. 530, on June 13th, 1913, at the Bristol School at Brooklands.

On Wednesday morning of last week, Major Becke, recently appointed O.C. 6th Squadron, R.F.C., was testing a lately overhauled Maurice Farman biplane at Farnborough, accompanied by an officer of another corps. It was noticed that the machine flew with a list to the left. On descending in a spiral, the engine being shut off, the machine got completely out of control and finally dived from some 70 or 80 feet, appearing to strike the ground vertically. Major Becke and his passenger were disinterred from underneath the wreckage of the machine, unhurt except for a few scratches. How they escaped is as mysterious as the reason for the machine becoming uncontrollable.

On Wednesday of last week Mr. Geoffrey de Havilland, of the Aeronautical Inspection Department, and Mr. Norman Spratt, chief tester at the Royal Aircraft Factory, both "looped the loop" on B.E. biplanes. Both these gentlemen are officers of the Reserve of the Royal Flying Corps, and so are the first Service aviators to "loop." One gathers that at least one other

officer of the R.F.C. has already succeeded in turning a B.E. upside-down sideways. It is understood that these experiments have been carried out in order to remove any impression that the B.E. type machines are unable to stand such strains. One may, however, point out that, while a comparatively new B.E. of recent type flown by a skilful pilot may stand up to these manoeuvres—looping sets up no more strain than does a severe gust—it is not advisable for officers mounted on the older type B.E.s, or on machines fatigued by long service, to endeavour to emulate them, for a failure to effect a clean loop will result in a tail-slide or side-fall, which is likely to cause more sudden and serious shocks, with fatal results. Possibly the most dangerous manoeuvre of all is a long dive followed by a sudden flattening out, which is liable to burst a whole wing, and a first attempt to loop may well be started—and ended—in this way.

It is of high interest to learn, on fairly reliable authority, that the load on the flying wires, which is registered by a particularly neat instrument fitted to the test machines, showed that the maximum stress set up when starting the loop is equal to about twice the normal flying load, and that when the machine is exactly upside down the load is still about half the normal load, and does not become a negative load—which would mean pressure on the top of the wings. These indications agree reasonably closely with the estimates formed in this office. Naturally a very quick loop increases the load very materially, and a badly executed loop may mean actual top pressure on the planes.

It is reported that following on the looping by Messrs. de Havilland and Spratt, the Director-General of Military Aeronautics has forbidden officers of the R.F.C. to loop on any machine.

At the Montrose Aerodrome (Squadron 2) last Monday Capt. Longcroft made two flights in B.E. 229; Capt. Todd went up in B.E. 228, and after a test flight took an air-mechanic as passenger and disappeared south. Lieut. Dawes tested B.E. 327 and then followed Capt. Todd south, also with an air-mechanic. Capt. Waldron also flew south in B.E. 229, with Capt. Dawes as passenger. First A.M. Higginbottom then went up in M. Farman 214. Lieut. Corballis flew B.E. 232, and later with Mr. Collier as passenger. Capt. Longcroft made three flights in B.E. 328, once with an A.M. and twice alone, giving a brilliant display of banking at low altitudes. On Tuesday, Lieut. Corballis flew B.E. 232 and A.M. Higginbottom M. Farman 214, both for local flights, and in the evening Capt. Longcroft flew B.E. 229 to Dysart and back with Capt. Dawes as passenger. On Wednesday, Capt. Todd on B.E. 229, with Capt. Dawes as passenger, and Major Burke, C.O., on B.E. 228, flew to Dysart and back, and M. Farman 214 and a few other machines made aerodrome flights. Rain interfered with flying on Thursday, but the M. Farman was out in the evening.

A mobilisation practice run took place on Friday, and the 16 big motor-lorries, accompanied by cars and motor-cycles, created quite a sensation in the streets of Montrose.

On Friday evening Lieut. Noel flew B.E. 229, and B.E. 327 made a cross-country flight. On Saturday morning the flights were mostly local and tuition, and Lieut. Martyn flew B.E. 235 during the forenoon.

Two additions were made to the machines at Montrose by the arrival of Lieut. Martyn on a Maurice Farman in a storm of rain on Thursday evening, and by Lieut. Rodwell's arrival on B.E. 332 late on Saturday afternoon.

Mr. Rodwell left Farnborough on Saturday morning and arrived in York two and a half hours later. There tanks were filled and the journey continued to Berwick, where he again landed to fill tanks. Thence he flew to Montrose, reaching the aerodrome at 5.25, having made a record flight of just five hours' flying-time between Farnborough and Montrose—a very fine performance.

No. 6 Squadron at Farnborough is busy with practice flights. On Monday, Major Becke, with Lieut. Chinnery as passenger, flew in B.E. 239 for 25 mins. at 4,000 ft., and Lieut. Lawrence later flew the same machine with a passenger at 4,000 ft. for a quarter of an hour. Capt. Picton Warlow flew B.E. 234 for an hour, and later took Lieut. Lawrence for a 15-min. flight,

THE BRITISH CAUDRON COMPANY, LTD.

(Late the W. H. EWEN AVIATION Co., Ltd.)

British built **CAUDRON** monoplanes, biplanes, hydro-aeroplanes (combined wheels and floats.)

The Flying School, which is one of the most successful in this or any country, will be carried on as usual at The London Aerodrome, Hendon.

THE WORLD'S. DURATION RECORD was raised to 16 hours, 28min., 56 secs. by M. Poulet on a **CAUDRON Biplane** on April 26.

Telephone: 50 Kingsbury.

The Aircraft Co., Ltd.

Hold the **SOLE RIGHTS DIRECT**
from the **FARMAN BROTHERS**

for the building of

HENRY & MAURICE FARMAN

Aeroplanes AND Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.

"Beautifully smooth running, thereby adding to general comfort, in addition to saving engine power."—**AEROPLANE.**

PALMER CORD TYRES

fitted to your car will give you greater speed, greater comfort and greater safety, with reduced petrol consumption.

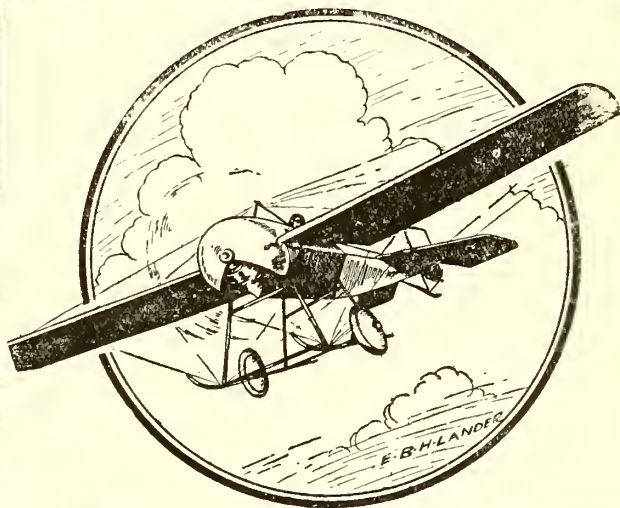
In the Palmer Cord Tyre Book you will find proof of the above. May we send you a copy?

Will you write for it to-day?

THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).



"BLACKBURN"

Monoplanes, Biplanes, and Hydro-Biplanes,
Propellers and Accessories.

THE BLACKBURN AEROPLANE COMPANY,
BALM ROAD, LEEDS.

Telegrams—"Propellers, Leeds." 'Phone—2822 Central.

London Offices: **H. A. TURRILL, 104, High Holborn, London.**
Telephone—4950 and 1791 Holborn.

after which he flew alone for half an hour, both flights being at about 3,000 ft.

On Tuesday, Capt. Picton Warlow again flew B.E.329 for 10 mins. at 2,000 ft., and Lieut. Chinnery, on the same machine, flew twice for 10 mins.

There was much flying on the following day. Capt. Picton Warlow, with Sergt. Wilkinson on B.E.234, flew for an hour at 4,000 ft., followed by Lieut. Lawrence and a passenger, who flew for over an hour at 5,000 ft. Lieut. Chinnery made four flights on B.E.329, varying from 5 to 10 mins. and all at low altitudes. Capt. Picton Warlow, carrying A.M. Weare on B.E.234, flew for 20 mins. at 4,000 ft.

On Thursday, Capt. Picton Warlow made two flights on B.E.234 at 5,000 ft., one with Lieut. Lawrence as passenger. Lieut. Lawrence, with Lieut. Humphreys as passenger, made a flight on B.E.239, and later flew alone. Lieut. Lawrence in B.E.239 flew with Sergt. Little and again alone. Lieut. Chinnery on B.E.329 made two flights.

On Friday, Lieut. Chinnery, on B.E.329, made four flights, mostly at about 1,000 ft., and Lieut. Lawrence flew B.E.239, with Capt. Baird as passenger, for 25 mins. at 3,000 ft. The new squadron seems to be doing much good work with the matériel at its disposal.

AUSTRALIA.

The "Sydney Bulletin," which is generally regarded as the leading Australian newspaper, says:—"Apparently the easy casualness with which Australia's champion airman, Harry Hawker, steps into his machine and goes for a flight as one would take a run in a motor has stirred or shamed the Defence authorities into doing something with the four Bristol biplanes which ex-Defence Minister Pearce ordered away back in July of the year before last. The machines, together with four mechanics and two certificated airmen, duly arrived and have remained stored up or bushed or lost ever since. First a "ground" was necessary—though Hawker merely runs his weapon out onto the street and soars up forthwith—so a huge paddock at Altona Bay was engaged. Then a hangar must be erected—Hawker uses an ordinary motor garage—so a contract was let for one at £4,100—the four planes only cost £3,460. The hangar (shed) isn't finished yet; in fact, it is hardly begun yet, but the department has got a move on; it has bought a motor-lorry to hump the planes from place to place—as if they couldn't fly from place to place—and has engaged motor-cars for the use of the mechanics and attendants. The whole thing would constitute a shrieking joke if it wasn't that there is tragedy behind it. If the Government would—and could—engage Hawker, and give him full authority and instructions to go ahead, it could probably have an efficient flying corps in a year or two. But then Hawker is an Australian, and it is always necessary to have an imported expert to make a fool of a job like that."

The above is a very fair specimen of the ignorant criticism one may expect in a "democratic" country which lacks an aristocracy. Our own newspapers are bad enough, but the

average British editor has at least some education and dimly understands the need for organisation before any military affair can be commenced. True, our authorities move slowly, and make mistakes, but there has never been any likelihood of the state of chaos which would result from allowing a youthful civilian pilot to "go ahead" with the formation of a flying corps. Incidentally, one of the "imported experts," Mr. Harrison, is an Australian, and both he and Mr. Henry Petre are only in Australia as instructors in flying and as engineers. The delay is due to the Australian Government. The organisation of the Australian Flying Corps as such is an affair for trained soldiers only.

On March 8th last Lieut. H. Petre was starting out for a flight on a 35-h.p. Deperdussin monoplane at the Central Flying School, Werribee, when the motor failed while he was yet too low to clear some telegraph wires ahead. He was therefore forced to make a sharp turn and the machine side-slipped from about 15 ft. Both wings, the undercarriage, and the propeller were damaged. Mr. Petre was unhurt.

FRANCE.

The 6th escadrille attached to Reims, which has been practising artillery control at Poitiers, flew back home on April 30th.

On April 29th M. Rugère delivered three Voisin biplanes to the French army in the presence of Capt. Destouches. The biplanes were fitted with Le Rhone engines.

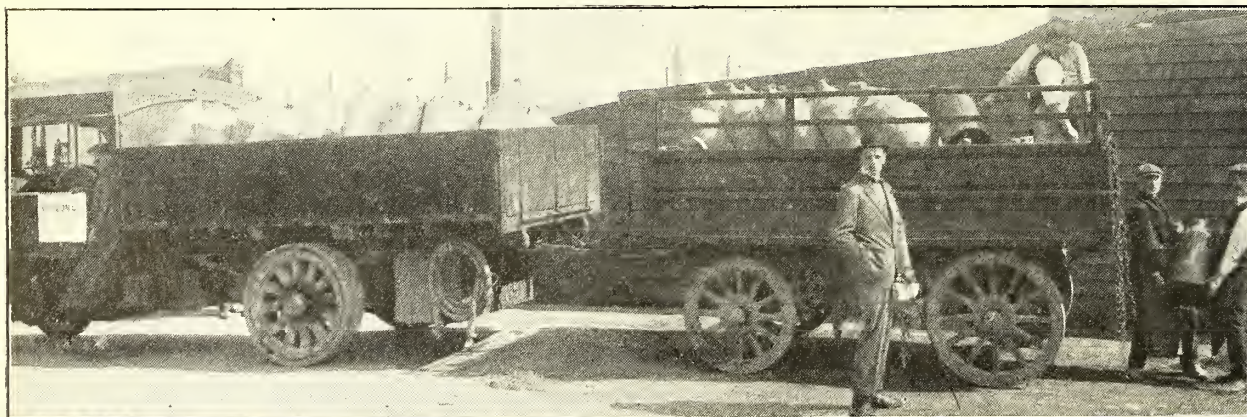
On April 29th Lieut. Boucher, Adjutant Guidon, and Sergt. Tremblay flew from Etampes to Dijon on Gnome-Blériots.

On the morning of May 4th Herr Becker, a brewer of Sarrebruck, landed in his balloon within eighty yards of the barracks of the 16th Chasseurs at Labry. The worthy brewster, who was accompanied by two friends, had started from his native place at an early hour, and owing to difficulty in operating the valve, they found themselves over France. However, they were allowed to depart on paying douanes and indemnifying the proprietors of the field.

Lieut. Dutertre, commanding the Naval Air Station at Fréjus, has been busy on his Bréguet, 200-h.p. Salmson, of the central float type. His recent trips are: Saint-Raphael-Toulon, 95 kms.; Toulon-Monaco, 160 kms.; Monaco-Saint-Raphael, 70 kms.; Saint-Raphael-Marseille and back, Saint-Raphael-Monaco, 400 kms.; Monaco-Saint-Raphael and back, 140 kms.; Monaco-Juan, 35 kms. A total of more than 1,100 kms. The machine on one occasion lifted a useful load of 510 kgs. (1,230 lbs.).

The naval air station at Fréjus now seems to be fairly well equipped. It possesses six Nieuports, six Voisins, two Bréguets and a Caudron, in addition to which there are certain school machines.

On April 2nd M. Lavasseur, on a Nieuport seaplane with a 80-h.p. Le Rhone motor and carrying a passenger, reached a height of 5,800 ft. in the course of reception tests for the navy.



CELLON FOR THE ARMY.—Mr. A. J. A. Wallace-Barr, superintending the dispatch of part of a contract of several thousands of gallons of Cellon to the Royal Aircraft Factory.

ACCLES & POLLOCK, LIMITED. ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
OLD BURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY. ONE QUALITY—THE BEST

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works: **BROOKLANDS AERODROME, WEYBRIDGE, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone: Byfleet 190.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

CELLON

LTD.

CELLON was used on the SOPWITH
waterplane which won the
SCHNEIDER CUP!

CONTRACTORS TO H.M. GOVERNMENT.

17, OLD BROAD STREET, LONDON, E.C. Telegrams: "AJAWB LONDON." Telephone: 5359 London Wall.

GODDARD'S

MOTOR, MOTOR-CYCLE,
and CYCLECAR HOUSES.



ft.	ft.	ft.	ft.	s.	d.
8	6	7	high	3	16 0
10	7	8	"	5	8 0
12	8	8	"	6	15 0
14	9	9	"	8	17 6
15	10	9	"	10	0 0

Carriage Paid.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned $\frac{3}{4}$ in. T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing.

Large Illustrated Catalogue with prices of other houses, post free.

Makers of Portable Wooden Buildings of all descriptions.

GODDARD'S, Ltd., Crown Works, Vicarage Lane, Ilford, Essex.

Telephone: 880 Ilford.

FOR EFFICIENCY & RELIABILITY IN AERO-RADIATORS

Send your enquiries to
the well-known radiator
experts

The Motor Radiator Mfg. Co.,
GREET, BIRMINGHAM.

Telegrams: **NERLEAK, BIRMINGHAM.**

Telephone: **455 VICTORIA, BIRMINGHAM.**

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

GERMANY.

Lieut. Wencher, of the 19th Ulans, stationed at Ulm, set up a new world's record for cross-country flight with two passengers. Starting on a 100-h.p. L.V.G. biplane from Metz, with Lieuts. Neumann and Roeder, at 10.50 a.m. on April 27th, he landed at Freiburg at 1 p.m., the distance being about 200 kms.

An Austrian aviation commission now visiting Germany was present in Strassburg last week, when nearly the whole of the military machines manoeuvred in air for the benefit of the guests. The commission is commanded by a Lieut.-Field-Marshal. [The rank is stated by our correspondent.—Ed.]

Major Siegert, piloted by Lieut. Geyer, flew from Strassburg to Hanover on an inspection tour, and the following day to Koenigsberg in an unbroken flight of ten hours. Returning with Lieut. Mikulsky, Lieut. Geyer flew from Koenigsberg to Berlin, where he landed, and then to Mulhouse, in Alsace-Lorraine, covering 1,200 kilometres in a net flying-time of 11 hrs. 45 mins.

Lieut. Niemeier, accompanied by Lieut. Mayer, left Doberitz on May 1st and flew to Halberstadt. When their machine was 60 ft. from the ground a gust of wind upset it. Lieut. Mayer was killed and Niemeier was seriously injured.

L.Z.24, the new Zeppelin the army will list as Z.9, is nearing completion, and will commence its workshop tests in May. L.Z.25 is also making very good progress. The "Sachsen" has been housed at Potsdam for a thorough overhauling. Since it was first chartered by the navy about a year ago it has carried out 370 tours without the slightest mishap.

The new Schütte-Lanz airship has been over the Black Forest on various occasions on its trial trips. Destined for the German army, it will be listed as "S.L. II" and housed at Cologne. With her four motors of 170 h.p. each she is capable of 85 kms. per hour, and so far has given entire satisfaction.

Last week the new Schütte-Lanz which was to be handed over to the authorities on the Tuesday was nearly destroyed at Leipzig after a flight from Hamburg. Owing to the loss of 50,000 cubic feet of gas, the dirigible made a very rapid descent, smashing its nacelle. Despite this, she was accepted by the military commission.

Two aeroplanes have been sent to German S.W. Africa during April, an Aviatik biplane, to be piloted by Truck, for Karibib, and a Roland steel biplane, built by the L.F.G., to Ketmanshoop, with Fiedler as pilot. Both machines are fitted with 100-h.p. 6-cyl. Mercédès motors and, when arrived, will be under the supervision of an aviator-officer, Lieut. von Scheele.

There is now great activity in military aviation, and long columns would hardly suffice to chronicle the interesting cross-country flights of each week, pilots travelling from one quarter of Germany to another and back in very good time. Koenigsberg, near the Russian frontier, is a very favourite trip, especially for the pilots stationed in the south at Metz or Strassburg, as this takes them from the most southerly to the most easterly of the German provinces.

Linnekogel demonstrated the new Rumpler waterplane on the Mueggel Lake, near Berlin, last week. Built for the navy, it is fitted with a 150-h.p. Austrian Daimler motor, and landed and started extremely well.

The Friedrichshafen Aviation Works have sent the first waterplane built to order of the navy to Kiel, and are engaged on a series of other machines.

The Zeppelin "Hansa," now at Hamburg in place of the "Sachsen," paid an early morning visit to Heligoland at 4.15 on April 21st; after manoeuvring for some time over the island, she flew to Hamburg, whence she had started at midnight.

AUSTRIA.

On April 28th a fatal accident occurred to Sergeant Wally on the Vienna-Neustadt ground; he was killed on the spot. —B.

ITALY.

The first double fatality of Italian aviation occurred on the 24th ult. at Mirafiori. Lieut. Napoli, R.F.C., with a passenger, Lieut. Battaglini, returning on an 80 Blériot from a trip to Venaria, when coming down not over steeply into Mirafiori over the sheds fell from a great height, both men being shock-

ingly mutilated. The machine would seem to have been one of the first Blériots built here by the S.I.T. Co. and recently overhauled, and some alleged that the wings collapsed owing to the fuselage longerons having been previously fractured by a bad landing. An inquiry is being held. I believe that this is the first accident of this sort in the Italian R.F.C. M. Blériot was just then in Turin, as the S.I.T. are testing an improved Blériot hydromono.

Another accident occurred earlier in the week at Malpensa to Lieut. Del Piano, and these two, following on that to Lieut. Sanita at Piacenza, are causing people to ask whether the permission to fly without restraint recently granted is quite as good a move as it appeared.

Lieut. Salamoni on the 22nd at Centocelle (Rome) reached 4,700 metres (14,500 ft.) on a Henri Farman, the first notable record of that escadrille. Judging by the number of N.C.O.s taking their tickets on both biplanes and monoplanes of all sorts it will not be long before officers will cease to be their own aerial chauffeurs, and so will have time to attend to the duties proper to their rank. A parasol Nieuport with Morane landing gear built at the Macchi works was recently tested by Clement Maggiora at Busto.—T. S. H.

It is said that the military dirigible M.3 has attained a speed of 84 kms. per hour and climbed to 3,000 ft.

TURKEY.

Lieuts. Selim Bey and Kemal Bey have flown from Edremid near Beyrouth to Jerusalem on their Blériot (80-h.p. Gnome).

JAPAN.

M. Liger, pilot of Moranes at Villacoublay, has started on his way to Japan, where he will organise aviation schools, presumably for the Government.

Foreign Notes.

France.

On Sunday, May 3rd, a match was flown between MM. Legagneux (Nieuport) and Audemars (Morane) at the aerodrome of M. Blériot at Buc, in the presence of a large crowd. A scratch race between the two aviators resulted in an easy win for Legagneux. A handicap based on the previous times resulted in another victory for Legagneux. Considering the reputation of the competitors the result of the handicap was not enthralling, for M. Audemars lost 47 secs. in a 15 km. race. M. Legagneux also won the landing tests.

Austria.

The Austrian circuit for the Schicht trophy was unfortunate in that one competitor was killed—Pietschmann—and another—Reiterer—put out of the running for the time. Pietschmann, accompanied by his brother, was on the first stage of the circuit when, near Zwettl, about 50 kms. from Vienna, at about 50 metres, his machine suddenly collapsed. Raimund Pietschmann succumbed almost immediately. His brevet dated from August, 1913, and he was considered one of Austria's best men.

The circuit ended at Vienna on Sunday, April 26th, when Wittmann (Lohner-Daimler) arrived first, being about 14 hours ahead of the others in the total flying-time. Konschel had to give up on the final stage as his machine was damaged in landing near Komorn. Wittmann receives 30,000 kroners as first prize; the second goes to Lieut. Bareth (Lohner-Daimler), who also gains the first speed prize and runs Wittmann close in the total amount. Thus the Austro-Daimler engine scores.

Italy.

A would-be wit writes that Cevasco has added to his other fine exploits that of having beaten all the slow delivery records of the Italian post office and of indulgence in banquets during his recent round flight from Milan to Milan via Turin and Genoa with a journalist and a letter of greeting to the Press of those cities on board. Advertising schemes require a clear view of the poster, not always obtainable when the same is in the clouds.

M. Pégoud, having been absolved of all murderous intent at considerable expense and worry, and having had to buy back the "casus belli," promises to fly on it, presumably to teach us not to jump at conclusions. It might after all have been cheaper to keep on his full staff of mechanics. —T. S. H.

TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane is one of **PIGGOTT'S PATENT AEROPLANE TENTS**.

Pattern No. 3, suitable for a Bleriot Monoplane. Price in waterproof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.
Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

Used by Messrs. Hucks
and Hamel in their
'looping demonstrations'

Officially recommended
by the Gnome Engine
Company, England



"For the Highway
and
the Skyway"

C. C. Wakefield & Co.
Wakefield House
Cheapside, London E.C.

C. D. C.

CRITCHETT WELDING & ENGINEERING CO., WELDING & BRAZING .. SPECIALISTS ..

Aluminium Welding Guaranteed.

Wire, Write or Phone

Tele. Address: Flexicable, Watloo, London. Phone: 2424 City.

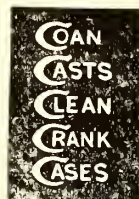
Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.

Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality
ON ADMIRALTY AND WAR OFFICE LISTS



R. W. COAN
219,
GOSWELL
ROAD,
LONDON, E.C.

Telegrams—
Krankases,
Isling,
London.

Telephones—
3846 City
4879 Central.

"EMAILLITE"

THE PREMIER DOPE
British Manufactured

"AS TIGHT AS A DRUM."

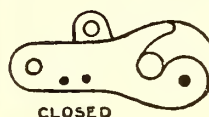
As adopted by H.M. Government and
all the leading Manufacturers.

The **BRITISH EMAILLITE Co., Ltd.**
30 Regent Street, Piccadilly, S.W.
Phone, 280 Gerrard. Wire, Santochimo, London



RELEASE GEARS for AEROPLANES

REG. PATENT N° 17,090-11.



CLOSED



OPEN

SPECIAL STEEL STRAINERS, EYEBOLTS,
BOLTS and NUTS, ETC. ALSO ENGINE HOUS-
INGS, and STEEL TUBE WORK.

Prices and Catalogue Free.

RUBERY, OWEN & CO. DARLASTON,
SOUTH STAFFS
Manufacturers of Aeroplane Accessories.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

is no friction between the two, and none of the engine power is absorbed here.

The propeller is encased in a flare ended tubular casing (not shown in the drawing) which ends just short of the motor, and a sliding casing, which may be pushed right clear of the engine—or pulled out to enclose it partially—completes an effective wind tunnel, through which an air blast at something like 60 m.p.h. is passed. In its extended position this casing leaves ample room for a mechanic to get at the engine and make minor adjustments while the motor is running.

At the dynamometer end of the transmission shaft both a speed indicator and a revolution counter are fitted. The former gives, with a fair degree of accuracy, the speed of the motor, but for actual power measurements the actual number of revolutions during a given period measured by a stop watch will be employed.

A calibrated petrol tank, fitted with an accurate gauge, is used to measure fuel consumption. This tank, being filled from a main tank of large capacity and the outside supply cut off, a simple reading of the gauge will give the total consumption over any reasonably extended period, and the fuel consumption tests will be made by such actual measurement of the fuel used, not by the instruments. The petrol from this tank passes to a smaller tank of about 1 gal. capacity with a ball float valve, so that a constant head of petrol to the carburettor is maintained.

In order that measurements of fuel consumption may be made quickly—for tuning up purposes, or for noting any irregularities during a run—the petrol from the float tank may be passed through a Venturi tube. This is a tube which tapers from the full bore to a constricted cross-section—some known fraction of the full bore—and back again to the full

bore, and the difference in pressure between the greatest and least cross-section indicates on a special calibrated sensitive pressure gauge the actual velocity of feed to the carburettor in pints per minute or gallons per hour. A finely graduated valve is fitted so that this flow may be regulated, while if the measurements of fuel flow are not required this instrument may be by-passed and fuel supplied straight to the carburettor.

Oil consumption will similarly be measured by the actual quantity of oil used in a given time, it being obvious that no other course is possible with engines fitted with sumps carrying an oil supply for several hours' running, or which are supplied by their makers fitted with oil tanks, but for such engines as are intended to be fed with oil from outside an oil flow meter is provided. This is simply a small tank with a float, which is counterbalanced by a weight on a cord passing over a pulley. The movement due to the falling of the float with the oil level rotates a needle over a scale graduated in pints. By timing the needle over a given number of divisions by a stop watch the rate of oil flow can be measured, and, consequently, adjusted to the desired value.

The water-cooled engines for the competition must be provided with the necessary radiators, and for the actual competition all tests must be made with these, but a cooling water-tank is provided to each test bed, and motors can be tested without radiators, arrangements being made to vary the degree of cooling by the admission of more or less cold water to the cooling tank from the main service tank.

An exhaust pipe of large diameter is taken from each cubicle to an external expansion chamber, and connection between the motor exhaust and this pipe is made by flexible metallic tubing.—W. H. SAYERS.

M. Marty's Accident.

Further light on the death of Philippe Marty has become available since this paper's last issue went to press. It appears that M. Marty was, at the time, giving an exhibition of slow flying, switching his engine off and on, being then only about some 40 or 50 feet from the ground. He was turning without banking, at the same time. The machine simply stalled, and instead of dropping sideways onto a wing-tip, which might have saved him, it only heeled slightly sideways and then dipped its nose, striking nose first before it had reached sufficient speed to allow the elevator to work, and yet at a high enough rate to cause fatal injuries.

This illustrates the danger of these slow flying exhibitions when low down. Several pilots are particularly fond of them, and if they continue long enough their machines will behave as M. Marty's did. At 100 or 150 feet a machine may have time to pick up speed and recover, but not at 40 or 50 feet. Obviously, therefore, M. Marty's death was due to a pure error of judgment on his own part. Only a week or so before I saw him jump the same machine almost vertically into the air when flying fast at about 6 feet from the ground, and at 70 or 80 feet up it only just managed to struggle over the top of the jump and get into a flying position again. If his engine had failed to pick up then he would have met with almost the same kind of accident as that which killed him.

A French lady, who knew M. Marty well, and who was at Hendon at the time, writes pointing out that he was not descending from looping at the time of his fatal accident. He had looped earlier, but was making another flight when the smash came. She also says, "He was too low to effect a spiral descent, being not more than 50 feet or so from the ground, and I felt something was going to happen." This lady adds the interesting information. "In one of his (M. Marty's) chats with us he told us that too much looping made his head twist sometimes, and it is a wonder that nothing happened to him then." This should be of value to other would-be loopers.

It should be noted that none of this later evidence detracts in any way from the value of the lesson to be learned from the need to keep warp-wires at full tension, as pointed out last week. As has been mentioned on several previous occasions, in considering and investigating accidents one may frequently learn more useful lessons from the various possible causes of any given accident than from the actual proved cause.

A pathetic side to poor little Marty's smash is that he had been given a week's holiday only a few minutes before his last flight, so that he might go to France to see his mother, and there was no need for him to fly again that evening.

A lesson to be learned from this accident is that pilots passing machines through the Army tests should, when doing their slow speed tests, either fly practically touching the ground, or else at 250 feet at least, so that there is either not enough distance to hurt if the machine stalls, or else there is room to turn over and recover again. Some day there is going to be a very nasty smash through a pilot trying to persuade a heavily loaded military machine to fly slower than is natural to it. The military authorities should encourage the production of air brakes so that a machine may fly slowly with its engine running properly instead of forcing the pilot to stagger along switching on and off, with the tail hanging down and the machine on the verge of stalling.—C. G. G.

The Desoutter Benefit Fund.

The Fund for the benefit of Marcel Desoutter, who met with an accident while flying last year, now amounts to £119 7s. 9d., and it is hoped that all who are interested in aviation will give this their support. The popular young pilot has been for long unable to follow his profession, and the object of the Fund is to help to provide for his future welfare. All subscriptions, however small, will be gratefully received by the Hon. Treasurer, T. K. Walton, The London Aerodrome, Hendon, N.W.

"Simplicity and Success in Photography."

All amateurs should inquire for the new booklet, under this title, issued by Messrs. Burroughs Wellcome and Co., which shows how science and invention are aiding the present-day photographer to achieve success by simplifying processes and methods. Well-known photographers attest, and interesting studies in tint and colour corroborate, their practical value in this booklet, which contains much matter of a useful nature.

The cover is a very striking example of colour work, and the illustrations, which include one of Mr. H. G. Ponting's remarkable photographs of Capt. Scott's expedition, and striking pictures by other experts, are alone sufficient to make the possession of the book desirable.

The text covers the use of the most up-to-date colour toning methods as well as the usual routine processes of photography.

The Aeronautical Society of Great Britain.

OFFICIAL NOTICES.—WILBUR WRIGHT MEMORIAL LECTURE.—The second "Wilbur Wright Memorial Lecture" will be delivered by Dr. R. T. Glazebrook, C.B., F.R.S., F.Ae.S., on "The Development of the Aeroplane," at the Royal United Service Institution, Whitehall, on Wednesday, May 20th, 1914, at 8.30 p.m. The Right Hon. Lord Sydenham, G.C.M.G., F.R.S., will preside.

On the evening preceding the meeting (viz., on May 19th) the council will entertain the lecturer and other distinguished guests at a banquet at the Royal Automobile Club, Pall Mall, S.W., at 7.45 p.m. for 8 p.m. Members are invited to purchase tickets for themselves or their friends at £1 1s. each, inclusive of wines, cigars, etc. Members desirous of contributing to the guarantee fund, which has been opened to defray the costs of official guests, may send subscriptions in addition to purchasing tickets. Cheques should be made payable to Griffith Brewer and sent to the Aeronautical Society, 11, Adam Street, Adelphi.—B. G. COOPER (Sec.).

Sussex County Aero Club.

On Saturday and Sunday, May 9th and 10th, Mr. Thornley will give an exhibition of flying, including looping the loop. Messrs. Pashley and Elliot will also fly and carry passengers. Flying to commence 3.30, weather permitting. The tennis-courts are now open for play.—H. GONNE (Sec.).

The Gordon-Bennett Eliminating Trials.

The arrangements for the Gordon-Bennett eliminating trials were discussed on April 23rd by the Competitions Committee of the Royal Aero Club. It was decided to allow each entrant to fly three machines in the eliminating trials.

The secretary was instructed to ascertain from the War Office if arrangements could be made for holding the trials on Salisbury Plain towards the end of August.

The entrants have been invited to discuss the details of the trials at the next meeting of the committee to-day, May 7th, at 4 p.m.

One would suggest that the Club's own aerodrome at Eastchurch is preferable to Salisbury Plain for the trials. It is much more accessible by rail, and provides landing-ground at least as good as most parts of the Plain for machines which fulfil the G.-B. conditions. Also, one may consider that the Navy takes more interest in the novel products of British manufacturers than does the Army, and so are entitled to the show. Let us remember that without the Navy some of our best aeroplanes would not exist.

The Aerial Derby.

The Rules and Regulations for this year's Aerial Derby are now announced from the Hendon Aerodrome. The date has been fixed for May 23rd (Saturday fortnight), and the competitors will start from the Hendon Aerodrome at 4.15 p.m. on their ninety-five-mile circuit of London, the winner being expected to arrive back shortly after 5 o'clock. There are five turning points over the course, as follows:—Kempton Park, Epsom, West Thurrock, Epping and Hertford.

The prize for the winner is the "Daily Mail" Gold Cup and £200, and there will also be the "Shell" Trophy and £200 in prizes for the Sealed Handicap which will be run in connection with the race. The whole of the cash prizes, amounting to £400, have been presented by the distributors of "Shell" Motor Spirit.

Several of the fastest aeroplanes in the world, piloted by famous British and Continental aviators, will take part, including Messrs. Hamel, Pixton, Hawker, Hucks, Carr, Noel, Goodden, Verrier, Barnwell, Raynham, Strange, Birchenough, Dyott, Alcock, and Beatty.

The Volk Seaplane Station Opens Again.

Hydro-aviators who are flying along the South Coast will do well to note that the Volk seaplane station at Brighton is now in working order again for the summer. The tent-shed designed by Mr. Hermann Volk, which is quite one of the simplest and most ingenious things of its kind, is at the disposal of all aviators with seaplanes, and it can be relied upon to give absolute protection in any weather. One hopes that before long Messrs. Volk's ambition to have a permanent station erected on the shore itself instead of the beach will be fulfilled.

Ancient History Revived.

Those who have followed aviation for some time will doubtless remember George Edward Trounce Woodward, who bought a large Farman biplane in 1910 on which he flew straights in the Stadium. He has recently again been brought to public notice by a law case. On Saturday Mr. Woodward was brought before the magistrates at the Guildhall and charged with converting certain sums to his own use which were alleged to have been used by him in the purchase of the said biplane.

Our Humorous Press.

From the "Star," May 4th—referring to the Sanchez-Besa biplane:—

"A biplane fitted with a motor-car brake, which can be applied to the wheels of the chassis to facilitate the safe landing of the machine, was seen at Hendon yesterday. . . The feature of the biplane is its foot brake, and the chassis has four wheels instead of two."

Of course, one cannot expect an "airmanship" expert to know that M. Paulhan had a front wheel on his Voisin in 1909, and Mr. Cody had two on all his machines. All biplanes of the Farman type have four wheels. The Rougier biplane had brakes in 1910, and many others have them to-day.

The Fabbri Auto-Photographic Apparatus.

Many visitors at the Aero Show were impressed by the excellent photographs taken by the automatic photographic apparatus invented by Capt. Fabbri, of the Italian Flying Corps, which were exhibited on the Bristol stand. It is now made known that the handling of this apparatus in Great Britain has been taken over by the Integral Propeller Co., Ltd., 1b, Elthorne Road, Upper Holloway, N., to whom all applications for descriptive matter and prices should be sent.

"Tel" Indicators and the Schneider Cup.

As the result of experiences in the Schneider Cup race, the Sopwith Aviation Co., Ltd., have sent the following letter to Mr. Ernest Lloyd, of the Hasler Telegraph Works, 26, Victoria Street, S.W., expressing their satisfaction with the "Tel" revolution counter:—

"Kingston-on-Thames, 27th April, 1914.

"Dear Sirs,—We have pleasure in informing you that we used your 'Tel' Revolution Counter on our hydro-aeroplane during the Schneider Cup Competition, and you will be pleased to hear that it gave us the greatest satisfaction.—Yours faithfully,

"For and on behalf of the Sopwith Aviation Company, Ltd. (Signed) H. A. MUSGRAVE, for General Manager."

It may be well to remind aviators that the "Tel" revolution counter has a very distinct claim to attention. Instead of depending upon centrifugal force, or an electro-magnetic system of indication, the "Tel" actually counts the number of revolutions the engine has run in each second, and indicates that number on a basis of so many revolutions per minute on the dial, so that assuming that the clock arrangement which controls the timing does not make mistakes as to the length of a second, which it is no more likely to do than is any other first-class clock, it is quite impossible for the instrument to register incorrectly, owing to changes in temperature, defective lubrication, or internal friction in the instrument. It is, however, necessary to see that the flexible shaft is properly fitted, for in the event of there being a kink which catches the internal driving wire, it is, of course, possible that the wire may take on a twist, in which case the number of revolutions indicated for one second may be less than the correct number, and then when the twist of the wire overcomes the impediment, the end of the wire will untwist itself, and so register a greater number of revolutions in the next second, thus causing the needle to jump, although the instrument is actually registering correctly.

In a centrifugal counter the momentum of the governor itself may carry it over such inequalities in the drive, and so give an impression of steadiness, although the instrument itself may be actually registering incorrectly all the way through. However, with correct fitting, the "Tel" needle will remain perfectly steady, and will advance and retard instantly with the revolutions of the engine.

Flying at Hendon.

The attendance was very good on Thursday, in spite of the cheerless weather.

Messrs. Strange, Carr, Lillywhite and Birchenough made frequent flights on G.-W. biplanes, and Mr. Carr looped the loop. M. Verrier also flew. A bomb-dropping competition was held during the afternoon; Mr. Strange made the best shooting, averaging 25 ft. from the bull's-eye; and Messrs. Lillywhite and Birchenough were second and third, respectively. Mr. Strange's best effort was a hit only eleven feet from the centre of the target.

On Wednesday, Mr. Rowland Ding, having taken over the Handley-Page biplane, 100-h.p. Anzani engine, made a good cross-country flight for his first time on the machine over Ealing way. On Saturday, after another cross-country trip, he landed at his own angle instead of the machine's, in avoiding a cow, and deteriorated the chassis and propeller.

In spite of a forty-mile gale, Saturday's flying was very fine. The first out was Mr. Carr on the Grahame-White tractor, and a very rough time he had of it, the quaint little machine swinging about in a weird manner. M. Verrier contributed the bulk of the flying, alternately taking up a "short-horn" and a "longhorn" Maurice Farman biplane, and getting off the ground at times in about his own length. Mr. Goodden went up twice on the Caudron, flew backwards against the wind, and looped, and Mr. Carr made a further flight.

On Sunday the "char-à-bancs" was up with numerous passengers, piloted by Mr. Graham-White and by Mr. Carr. Mr. Noel and Mr. Carr flew "Lizzie." Messrs. Birchenough and Strange were out on box-kites. Mr. Strange also flew the Blériot.

M. Delaporte, on the Sanchez-Besa biplane (80-h.p. 7-cyl. Salmson, geared down), arrived early in the morning from France via Eastchurch. In the afternoon he gave a fine acrobatic exhibition. His first twisting dive over the judge's box, owing presumably to the colour and shape of the machine resembling the Champel, drew from many people the remark that it looked as if the Champel's smash was about to be repeated. Mr. Nestler, who represents the Bathiat-Sanchez firm here, says a newer machine is to arrive shortly.

Late on Sunday evening a strange Blériot hove in sight, and great was everyone's amazement and joy when, on its landing, Marcel Desoutter climbed out. Lord Edward Grosvenor, good sportsman that he is, had lent M. Desoutter the machine he has recently had done up by the Blériot Company at Brooklands, and, despite the strong head wind, and without map or compass, the plucky young Frenchman had made his way across country, taking something like an hour over the journey. He said on arriving that he found no difficulty in working the rudder with his artificial leg, and he certainly controlled the machine with all his old skill.

Flying at Brooklands.

On Monday, Mr. R. H. Barnwell made several flights with passengers on the Vickers gun-carrying biplane, at one time taking Mr. Victor Wilberforce and a lady together. Lieut. Collet, R.M.A., was out on the Albatros. The Naval Parseval was over the aerodrome. Maj. Becke, with Lieut. Chinnery, arrived on B.E. No. 239, and Lieut. Stoddart, with a passenger, arrived on M. Farman No. 359, both machines leaving shortly after.

A Sopwith "tabloid" was also out.

On Wednesday, Capt. Picton-Warlow and Sergt. Wilkinson arrived on B.E. 234, shortly followed by Lieut. Lawrence and a passenger on B.E. 239, both machines left later. In the afternoon a new Bristol school biplane arrived. Lieut. Collet took Mr. Dukinfield Jones as passenger on the D.F.W. The Naval Parseval was again over the aerodrome.

On Thursday afternoon Mr. Mahl was doing hops on the 80-h.p. Sopwith

biplane. Mr. Barnwell made several flights on the gun-carrying biplane.

On Friday afternoon Mr. Hunt was testing his 50-h.p. Blériot after having the wings, etc., re-covered.

On Saturday afternoon, the Naval B.E. No. 50, piloted by Comdr. Samson, R.N., and Blériot No. 39, piloted by Eng.-Lt. Briggs, R.N., came over from Eastchurch, and the D.F.W. was out, piloted by Lt. Collet. Mr. Barnwell flew the Vickers gun-carrier, and Mr. Hunt his Blériot.

On Sunday afternoon Mr. R. H. Barnwell was out, taking up many passengers on the Vickers gun-carrier, including two "brace" of passengers and the Brooklands free passenger. Mr. Pixton gave a very fine exhibition on the Sopwith "tabloid." M. Desoutter was flying Lord Edward Grosvenor's 50-h.p. Blériot, on which he started for Hendon. Mr. Hunt flew his 50-h.p. Blériot, and Mr. F. W. Merriam, a Bristol school biplane. Mr. Hunt was warned by the management for flying low over the crowd.

Flying on the South Coast.

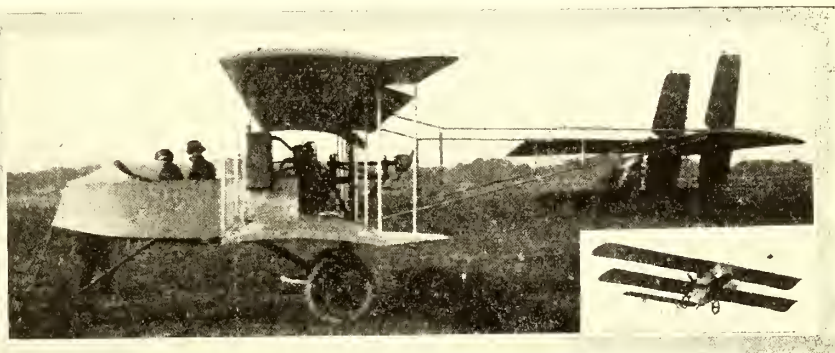
There has been much wind at Shoreham all the week, but the Pashley and Shoreham Flying Schools have been out whenever possible. On Tuesday last Sub-Lieut. Rainey, R.N.R., flew from Southampton to Shoreham on an 80-h.p. Sopwith biplane. When over Worthing at 6,000 ft. a connecting rod of his Gnome broke, but he was just able to land in the aerodrome. On Thursday, Lieut. Cholmondeley, R.F.C., arrived from Farnborough on a 70-h.p. Renault Maurice Farman and left later.

On Wednesday Mr. Fowler flew over to Brighton on an 80-h.p. Henri Farman waterplane, and after several successful flights received a message to return to Eastbourne immediately. Mr. Pashley's biplane went over from Shoreham at 900 ft., turned by the West Pier, and returned.

Last summer the West Pier Co., at considerable expense, by permission of the Town Council, erected a shed alongside the pier on a part of the beach that the Company owns. It was originally intended for Mr. Hamilton Ross, but his Viking waterplane proved a failure and they did not see much of their outlay back. The shed stood throughout the winter, but when the present season was commencing they received a request from the Town Council to take it down. It would be interesting to know why. The shed would have encouraged waterplanes to visit Brighton this summer, and such visits do good to the town, yet a near-sighted Town Council forces the Company to pull down their shed and give them no opportunity of recovering their outlay.—E. L. D.

Mr. Hamel at Derby.

On Wednesday and Saturday, April 29th and May 2nd, Mr. Hamel gave exhibitions at Derby before excellent gates of about 5,000 people. Loopings were made on both occasions—ten loops in succession were made in the course of one flight, and passengers were carried. One of the flights was made near the workhouse to please the inmates.



M. Delaporte, with M. Sanchez-Besa as passenger, on the Sanchez-Besa biplane (80-h.p. Salmson) at Hendon on Sunday. This machine flies well and is handled most skillfully by M. Delaporte. The four rudders balance the big forward area. The whole tail acts as an elevator.

The Week's Work.

Weather Report for Week Ending May 3rd.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands	Windy	Windy	Windy	Windy	Windy	Windy	Windy
Calshot	Windy	Windy	Wet	Fine	Calm	Wind	Calm
Eastchurch	Fine	Windy	Fine	Fine	Very	Windy	Fine
Hendon	Windy	Windy	Windy	Windy	Windy	Fair	Windy
Monterose	Bright	Fair	Dull	Rain	Bright	Bright	—
Shoreham	Windy	Fair	Fine	Good	Very	Windy	—

School Reports.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors: Messrs. Strange, Howarth and Lillywhite. Pupils with instr on machine: Messrs. Robinson, Peck, Lowe, Wiles, Cowley, Moore, Boyesen. Strts or rolls alone: Messrs. Moore, Smiles. 8's or circles alone: Messrs. Parker and Smiles, Major Piercy. Certificate taken: Mr. Parker. Machines in use: Grahame-White school biplanes.

AT HALL FLYING SCHOOL.—Instructors: Messrs. J. L. Hall and Virgilio. Pupils with instr on machine: L. Palmer (15 mins), Rose (15 mins), A. F. Arcier (15 mins). Strts or rolls alone: Miss Sophie d'Elsa (3), H. Gearing (2). 8's or circles alone: L. Edgcombe Palmer (5 circles on No. 1 Caudron, also eight 8's at 250 ft), A. F. Arcier (6 $\frac{1}{2}$ -circles). Machines in use: Caudron and Avro biplanes, 25 Anzani penguin. Mr. Hall out every day on Avro. Ten passengers, including two ladies. On Friday evening Mr. Hall with Mr. Dennis Ware, R.F.C., as passenger, reached 2,600 ft, making wide detour of surrounding country.

AT BEATTY SCHOOL.—Instructor: M. Baumann. Pupils with instr on machine: Messrs. Bentley (17 mins), Ruffy (27 mins), Allen (22 mins), Banks-Price (7 mins), Cheung (new pupil) (10 mins), Hodgson (7 mins), Garvin (23 mins), Major Piercy (3 mins). 8's or circles alone: Messrs. Ding (37 mins), Watts (35 mins), Stewart (13 mins), Edridge-Green (25 mins). Certificate taken: Mr. W. Rowland Ding. Machine in use: 40-h.p. Wright biplane. Four exhibition flights by M. Baumann, and 3 passengers carried.

AT CAUDRON SCHOOL.—Instructor: Mr. W. T. Warren. 8's or circles alone: Messrs. Curtis and Garvin. Machines in use: 35-h.p. Caudron biplanes. Mr. René Desoutter, a Blériot pilot, has been signed on as additional pilot-instructor.

Brooklands.—AT BRISTOL SCHOOL.—Instructor: Mr. Merriam. Pupils with instr on machine: Lt Mills (8), Mr. Lucas (2), Mr. Eastwood (3), Lt Smithies (3), Mr. Racine Jacques (2), Mr. Lagrange (1). Machines in use: Two school biplanes. The weather was too windy for pupils to go out on solos.

AT VICKERS SCHOOL: Instructors: Messrs. Barnwell, Knight, Elsdon and Webb. Pupils with instr on machine: Maj Phillips (5), Lts Leighton (1), Wood-Smith (10), Underhill (1), Messrs. Collins (7), Murray (3), Liddell (4), Steinbach (1). 8's or circles alone: Lts Underhill (5), Leighton (2), Messrs. Liddell (4), and Murray (1). Machines in use: Two school biplanes. Mr. Barnwell on gun-carrying biplane took many passengers.

Shoreham.—SHOREHAM FLYING SCHOOL: Instructor: Mr. H. Elliott. Pupils with instr. on machine: Messrs. Gates, Sholto-Douglas, Hayland-Wilson. Strts or rolls alone: Messrs. Sholto-Douglas, Gates, Hayland-Wilson. 8's or circles alone: Messrs. A. Maskall, C. H. Maskall, R. P. Cannon, D. R. Aikman. Machine in use: Propeller biplane (50 Gnome).

AT PASHLEY SCHOOL.—Instructor: Mr. C. L. Pashley. Pupil with instr on machine: Mr. Mortimer. 8's and circles alone: Mr. Hale (6). Machine in use: Biplane (H. Farman type, 50-h.p. Gnome).

Eastchurch.—The Hon. Maurice Egerton flew his Short biplane (50 Gnome) on Monday. On Wednesday and on Sunday Mr. Alec Ogilvie had both his Wright biplanes (50-h.p. N.E.C. and 35-h.p. Green) out, and on Sunday Prof. Huntington made a short flight on his machine. M. Delaporte arrived at Eastchurch from Boulogne on the Sanchez-Besa biplane (80-h.p. Salmson) on Saturday evening, leaving about 9 a.m. on Sunday for Hendon.

Mr. B. C. Hucks at Chesterfield.

As the chief attraction in connection with the Chesterfield Shopping Festival, Mr. Hucks demonstrated there on Wednesday, Thursday, Friday and Saturday of last week. On the looper, Mr. Hucks started with a triple, and completed seven loops in the flight. Afterwards, on the 80, he flew to Brimington in response to the special request of an invalid gentleman who had never seen an aeroplane. On Thursday six loops were made in addition to flights on the two-seater, but the wind was too tricky for passengers. On Friday, Mr. Hucks circled Brimington Church spire and looped nine loops. An immense "gate" turned up on Saturday. In all nine loops were made, and Mr. Hucks also evicted violently on the 80.

This week Mr. Hucks is at Leicester. Norwich will be visited on May 14th, 15th and 16th.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

MULTI-CELLULAR AEROPLANE HAVING AUTOMATIC STABILITY APPARATUS.

THE Proprietor of the Patent No. 9,128 of 1911, and Patent of Addition No. 9,884 of 1911, for the above, is desirous of entering into arrangements by way of licence and otherwise on reasonable terms for the purpose of exploiting the same and ensuring their full development and practical working in this country.—Address all communications to HARRIS & MILLS, Chartered Patent Agents, 34-35, High Holborn, London, W.C.

THE Proprietor of Patent No. 6527 of 1911 for "Improvement in Airships" is desirous of entering into arrangements by way of licence and otherwise on reasonable terms for the purpose of exploiting the same and ensuring its full development and working in this country.—All communications to HASELTINE, LAKE & Co., Chartered Patent Agents and Consulting Engineers, 28, Southampton Buildings, Chancery Lane, London.

TUITION.

THE CAUDRON SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best-equipped School, enquire what the Caudron pupils are doing.

THE BRITISH CAUDRON CO., LTD.,
London Aerodrome, Hendon.

VICKERS, LTD.—AVIATION SCHOOL, at Brooklands. Thoroughly graded tuition from slow biplanes to fast monoplanes.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

LEARN to Fly at the Premier English Aviation School. Tuition given on Avro tractor biplanes, Blériot monoplanes, Caudron biplanes, Deperdussin monoplanes. Moderate inclusive fees, flying and constructional. **PASSENGER FLIGHTS AT MODERATE CHARGES.** Exhibitions of "looping the loop" and upside-down flying, etc., given by J. Lawrence Hall.—For full particulars apply to **HALL AVIATION Co., Aerodrome, Hendon, N.W.**

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

HALL FLYING SCHOOL.

HALL FLYING SCHOOL.—TUITION—Flying and Constructional—given on

- A vro Biplanes.
- B lériot Monoplanes.
- C audron Biplanes.
- D eperdussin Monoplanes.

N.B.—Only tractor machines in use.

PASSENGER FLIGHTS.

Flying exhibitions.—Write at once for full particulars gratis to **HALL AVIATION Co., London Aerodrome, N.W.**

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIÈRE'S famous Integral Propellers hold all records; used by all leading aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER Co., LTD., 1B, Elthorne Road, Upper Holloway, N.** Telephone: 912 North. Telegrams: "Aviprop, Uphole," London.

MACHINES.

CODY BIPLANE; practically complete and unused; less covering; accept £10; quick sale; space wanted.—**WEAVER, Cox Street, Coventry.**

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London.** Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—**Box 533, THE AEROPLANE, 166 Piccadilly, W.**

EMPLOYMENT.

JOINER, (35), seeks Situation in Aeroplane Works as woodworker or erector; keen on flying.—**Box No. 505, THE AEROPLANE, 166, Piccadilly, W.**

WANTED, thoroughly reliable Mechanic; with experience of high-power Anzani engines; good wages to good man.—Apply, **W. ROWLAND DING, Aerodrome, Hendon.**

WANTED, Acetylene Welder; used to light work; also Tinsmith and Aluminium Worker.—Apply, **THE SOPWITH AVIATION Co., LTD., Kingston-on-Thames.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT Co., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three ply. Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON AND SONS, LTD., 130, Hackney Road.** 'Phone 4770 Wall.

"HOW TO UNDERSTAND AEROPLANES."—S. L. WALKDEN; IS.; now ready.—**PERCIVAL MARSHALL & Co., 66, Farringdon Street, London, E.C.**

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.

MOISTURE PROOF

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. DURATION MODEL, size 31 inches by 24 inches, price 5s. Flights of nearly 1-mile can be obtained with this model. We stock everything for models.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham.**

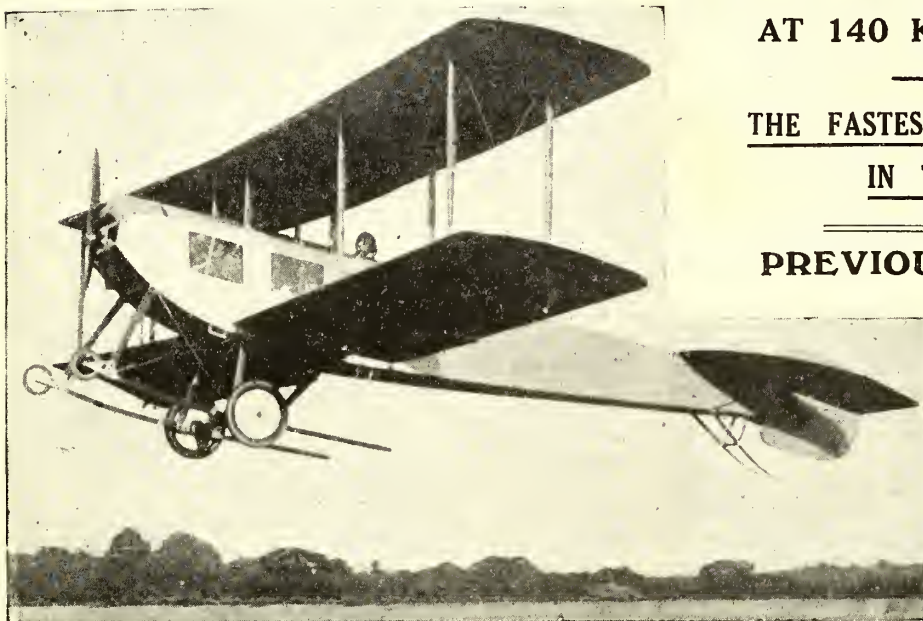
T. W. K. CLARKE & CO.,
HAMPTON WICK, MIDDLESEX.

THE original manufacturers of Model Aeroplanes and Accessories. Send for our list containing everything for Model Making. Rotary Compressed Air Motors, with Propeller, £1 1s.

THE LATEST SOPWITH SUCCESS:—

WINNING OF THE SCHNEIDER CUP

AT 140 KMS. PER HOUR.

THE FASTEST HYDRO-AEROPLANE
IN THE WORLD.PREVIOUS RECORDS on
the preceding type
of SOPWITH
BIPLANE (80 h.p.
Gnome).British Height Record
(Pilot alone) 11,450 ft.British Height Record]
(Pilot and 1 Passenger)
12,900 ft.British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's
Admiralty and War Office.)Telephone :
1777 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

Telegrams :
"SOPWITH, KINGSTON."WONDERFUL
HENDON."LOOPING" and AIR RACING
Every Thursday and Saturday, from 3.0 p.m.
(weather permitting).

TO-DAY

Thur. May 7. 8 mile Cross Country Race.

Sat. next, May 9. MAY MEETING.

16 mile Cross Country Race.

Sat. May 16. SECOND SUMMER MEETING.

Sat. May 23. THE AERIAL DERBY

(for the "Daily Mail" Gold Cup and "Shell"
Prize of £400). Starts (4.15 p.m.) and finishes
at Hendon. Admission 1/-, 2/6, 5/-, 10/-.
Motors 5/- and 10/-.Special Displays and Passenger Flights
every Sunday afternoon.Passenger Flights daily from £2 2s. 0d.
Admission 6d., 1s., 2/6 | Motors - - - 2/6
Children Half-price. | (Includes chauffeur.)

London Aerodrome, Hendon, N.W.

Proprietors: The Grahame-White Aviation Coy., Ltd.

HENDON: Phone—Kingsbury 120 (4 lines). Wires—"Volplane, Hyde, London."
LONDON: 166 Piccadilly, W. Phone—Mayfair 5955. Wires—"Claudigram, Piccy,
London."THIS is an illustration of the Cover of the 1914
Fixture List, which contains numerous illustra-
tions of the Flying at Hendon, a complete list of
Fixtures and Events for 1914, and particulars of
Passenger Flights, Routes to Hendon, Season Tickets,
etc. Free on application to Department A, London
Aerodrome Offices, 166 Piccadilly, London, W.

THE AEROPLANE

12
WEEKLY

Edited by CHAS. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.]
AS A NEWSPAPER.

THURSDAY, MAY 14, 1914.

No. 20

AN ALL-ROUND MAN.



Mr. F. B. Fowler, chief of the Eastbourne Aviation Co., Ltd. Designer, constructor, instructor, school manager, and excellent pilot of land and seaplanes.

The "Bristol" Flying Schools

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.

FILTON HOUSE, BRISTOL.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■ ■ ■

Mr. W. Rowland Ding took his pilot's certificate after $3\frac{1}{2}$ hours in the air, 14 days' actual training. During his test flights he reached an altitude of 1,150 feet, gliding down from this height with his engine cut off.

The Beatty method of training is the quickest and most thorough.

Tuition on Handley Page Monoplane & Wright Biplanes

£75.

Special terms to Naval and Military Officers.

(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying,

London Aerodrome,

Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all newsagents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Fiasco of the Aero-Engine Competition.

Before any information as to the progress of the aero-engine competition could be obtained last week, an experienced engineer who had seen the testing plant at Farnborough prophesied all kinds of evil from the bad arrangement of the otherwise good test machinery. He was particularly emphatic about the damage which would be done to the engines by the heavy and clumsy cardan shaft joints between the engine-coupling and the first pedestal carrying the cooling fan. In fact, when I asked him whether it could work properly, his reply was precisely that given by Miss Eliza Doolittle to the question of walking across the Park.

Reference to the sketch of the testing arrangements shows that there is an unsupported length of 2 feet 6 inches between the engine coupling and the pedestal bearing, and, according to the Royal Aircraft Factory's drawing, the cardan shaft itself is 1 foot 6 inches long. I learn that this bit of shaft with the cardan joints weighs close on 120 lbs. Consequently, the slightest slack in the joints promptly sets this weight vibrating in a way which no engine anchored to a solid steel bed could possibly stand. The inevitable has happened, my friend's prophecy has come true, and the test of the first six engines has turned out a miserable fiasco.

When I visited the test shed for the second time (on Saturday last), three engines were on the benches, an Argyll, the E.N.V., and the White and Poppe. The cubicles occupied a week before by the Wolsley, Salmson, and Sunbeam were vacant. No information was available, because all the competitors had gone home the previous evening, and as the officers of the Managing Committee are not allowed to give any information, I did not ask for any. But I noticed a Wolsley case being slung onto a lorry, and concluded that here, at any rate, was one casualty. The extent of the damage done all round only became known when I had hunted up various people indirectly connected with the competing engines. I may say that no information has been given me by heads of firms, so it will be useless for offended Government officials to try and retaliate by "taking it out of" the competing firms. Here is a substantially correct and brief history of the results.

The first Argyll broke her crank-shaft and was replaced by the second, which, after starting well, began to lose power and overheat. I noticed in her cubicle that a screen had been fitted round her to scoop air from the fan into the radiator, which is obscured by the engine in the way I mentioned last week. I am inclined to think, however, that the overheating is caused by the strain thrown on the bearings by the slashing about of the cardan shaft, for if the engine shaft does not break, as the first one did, the bearings must be taking up the strains from this vibration. An engine which has done the tests which the Argyll has done in its own works is not going to crack up at lower speeds at Farnborough without some extraneous cause.

The Sunbeam first started breaking pipe connections owing to the vibration set up by the cardan shaft, and after standing its hammering for a considerable time finally cracked a water-jacket and was taken away. A similar engine at Brooklands has done 230 hours' flying before needing an overhaul.

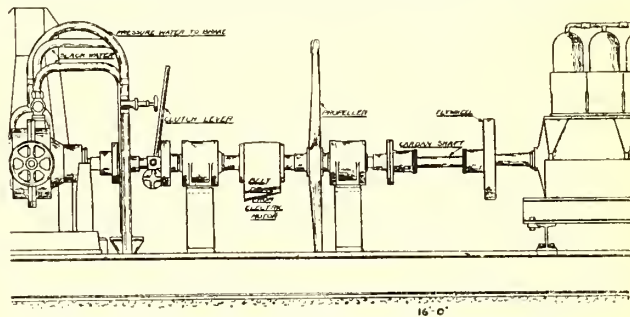
The E.N.V., after starting well, while the cardan shaft was

fresh, began shaking, like the rest, then lost power, and then the radiator started leaking. The engine remained on the bench awaiting a new radiator.

The White and Poppe also started well, at her usual 120-h.p., then the power dropped to about 90-h.p., and then it was found that one of the cardan joints of the test plant was red hot and seized up, so the unfortunate engine was being compelled to drive against a stiff joint. How much damage, if any, was done inside the engine I have not heard.

The Salmson started happily enough, but before long the whole engine began dancing, as the slack developed in the cardan joints, and the makers simply withdrew the engine before any damage was done. It is said that they are to make and fit a coupling of their own to replace the R.A.F. hundredweight job.

The Wolsley did one six-hours run. Then she started on another and a couple of bearings ran out. Also, the bearing carrying the cooling fan between the two pedestals seized up. This bearing, as was herein stated last week, is independent



The Defective Portion of the Test Machinery.

of the engine-driven shafting altogether, the fan being driven by a belt from an electric motor, and the fan-bearing being in a sleeve outside the shafting. Still, vibration of the cardan shaft may well upset the bearing in the sleeve, as both are carried on the same pedestal.

The case of the Wolsley is peculiarly interesting, because she was the only engine fitted with a fly-wheel. That is why her shaft stood up to the first six hours. But apparently that run had made the slack of the cardan shaft so bad that the bearings went ultimately.

Any motor engineer reading these notes will naturally ask why all the other engines did not use fly-wheels. The answer is the very simple one that on an aeroplane the propeller itself is an excellent fly-wheel, if it is decently balanced, and, therefore, an aero-engine designer is not going to add the dead weight of a big fly-wheel. Also, any motor engineer will equally naturally ask why anyone in his senses put over a hundredweight of badly-made cardan jointing into a three-foot length of unsupported shafting (this includes the average overhang from the nose of any of the engines to the coupling), with everything else fixed on a rigid steel and concrete base. Here, again, the answer is the very simple one that the whole job is a piece of Royal Aircraft Factory design. It is only

what one might expect from the brilliant brains—the best brains in the world, according to Colonel Seely—which tried to make an engine with a tool-steel crank-shaft, and were surprised the shafts ordered would not stand turning.

The R.A.F.'s record in aeroplanes is fairly bad. No other British aeroplane designer has had so many machines break in the air, and no other is responsible for so many deaths, but their efforts on engines have been even worse, though, fortunately, without fatal results. Quite a long time ago, I related how they used to take French engines to pieces, before handing them over to the Army, and then have to borrow Gnome, and Renault, and Salmson mechanics from aeroplane firms to put them together again. Their own engines, including the one boomed by the "Daily Mail" as our "Government Insurance," have been abject failures. They ruined sundry White and Poppe and Green engines, in the old dirigibles which were equally failures till they were patched up according to the demands of soldiers who knew what they wanted, and got it. A few months ago they wrecked a brand new 100-h.p. Green belonging to the Navy, after it had passed brilliant tests under the observation of Naval engineer-officers who know their business. Recently they have been breaking up 120-h.p. Beardmore-Austro-Daimlers through equally idiotic mistakes. The few good men they have ever had have thankfully shaken the dust of the R.A.F. from off their feet, and have joined other firms, or have gone over to the Aeronautical Inspection Department. And now a piece of sheer damned foolishness—there is no other expression for it—has cost several hundreds of pounds to a number of motor manufacturers who have been sufficiently enterprising to set aside some of their paying car business in the hopes of securing a foothold in the industry of the future. This is how they are officially encouraged.

When this competition was first discussed I warned everybody concerned that it would be a failure if the R.A.F. had anything to do with it. We were told that it would be a purely Naval and Military affair, and that there would be no civilian interference. That promise has been kept, so far as the management is concerned, and though, from some points of view, one could wish for some alterations in rules and regulations, no one has any real complaint, and everyone is

charmed by the courtesy of the officers controlling the tests. But, apparently, unable to tear itself away from its incubus the R.A.F., the War Office has ruined the whole thing by allowing the grossly incompetent officials of that establishment to make the testing arrangements. There are in the R.A.F. certain men who are really clever at designing and making scientific instruments—or, at any rate, there is one—but as for regular engineering it does not appear as if there could be a solitary person in the place fit to run the power-plant of a sewage farm.

In the meantime one would like to see the R.A.F. engine, of which we have heard so much, submitted to a test on one of the existing test benches under exactly the same conditions as the existing engines. Only in this way can motor manufacturers be assured that they are having a fair field and no favour. But, how this form of test is to produce an engine fit for aeroplanes is not apparent.

It is sheer waste of time, money, and material for any engine-maker whose engine is fit for aeroplane work, as distinct from driving a road roller, to put his engine on test till the plant is altered. Any first-class engineering firm could make a job of it in about a month. Meantime, the sensible thing seems to be either for the Admiralty and War Office to pluck up courage and admit that the tests are a failure, and will be resumed at some future date, or for the competitors to unite, in the interests of the motor industry, and withdraw all their engines, afterwards submitting the same engines to independent tests and publishing the results.

To stand up to the jarring strains set up by the present testing apparatus an engine would have to be so heavily built that it would be quite useless for aeroplane work. The engines must be tested on reasonably light machinery properly arranged by competent engineers, and fly-wheels of a predetermined weight—to correspond to the absent propeller—must be allowed without their counting as part of the engine weight. Despite the opinion of certain would-be-considered "experts" a water-dynamometer has no fly-wheel effect. Also, aero-engines do not run on absolutely rigid beds. There seems room here for the Aero-Engine Committee of the Society of Motor Manufacturers and Traders to wake up and do something to justify their existence.—C. G. G.

The Aeronautical Society.

OFFICIAL NOTICES.

Wilbur Wright Memorial Banquet.—Members of the Society will be interested to hear that Colonel the Rt. Hon. J. E. B. Seely will honour the Society with his presence at the Royal Automobile Club on the 19th inst. The Rt. Hon. George Lambert, M.P., Sir H. F. Donaldson, Sir A. Geikie, Lord Montagu of Beaulieu, General Guthrie Smith, Hon. A. Stanley, Colonel Squier (U.S. Embassy), Sir R. H. Brade, Rear-Admiral Sir Charles Ottley, General von Donop, and General Henderson are also amongst those who will be present.

Wilbur Wright Memorial Lecture.—The second "Wilbur Wright Memorial Lecture" will be delivered by Dr. R. T. Glazebrook, C.B., F.R.S., F.Ae.S., on "The Development of the Aeroplane," at the Royal United Service Institution, Whitehall, on Wednesday the 20th inst., at 8.30 p.m. The Rt. Hon. Lord Sydenham, G.C.M.G., F.R.S., will preside.—B. G. COOPER (Sec.)

The Aeronautical Society's Strange Action.

Members of the Aeronautical Society will no doubt have been astonished at the circular sent out by the Council asking members to support the Wilbur Wright Memorial Banquet with their presence because, if you please, "Colonel the Right Hon. J. B. Seely will honour the Society with his presence." One would have expected rather that the presence of Colonel Seely, M.P., would have ensured the absence of those who have any real regard for the progress of aviation in this country, either naval, military, or civil.

The peculiar circumstances under which Colonel Seely was obliged to resign from the War Office quite recently, the exposure of his astounding untruthfulness concerning the equipment of the Royal Flying Corps last year, the way in which

he acclaimed the products of the Royal Aircraft Factory to the serious detriment of the aeroplane industry, and to the delay of progress in land machines compared with seaplanes, the chilling reception to which he was subjected at the Royal Aero Club dinner last year, his obvious personal incapacity as a politician and his still more obvious ignorance of aeronautics, would, to any ordinary person, make it clear that he is quite an unsuitable person to be the guest of honour. The Council of the Aeronautical Society must be peculiarly out of touch with those of its members who have done most to help the progress of aviation in this country if it imagines that Colonel Seely's presence will be any honour to the Society. If, on the other hand, it simply desired to attract purchasers of tickets for the banquet it might easily have put up some more amusing notoriety as a bait.

As a member of the Aeronautical Society for the past five years, it pains me, as it must pain many others, to see in the Council's circular the names of several distinguished and very able officers of the King's Services and of some noted scientists, cited as a kind of secondary attraction to Colonel Seely, as being "also amongst those who will be present."

Last year a French aviator, a decent enough little soul in his way, who faked the figures relating to his attempt on a record flight, was suspended for ten years by the Aero Club de France, and so was debarred from earning his living at the work which suited him best. In this country, Colonel Seely, who published in the House of Commons in his capacity as a Minister of the Crown, faked figures and statements which endangered the safety of the nation and indirectly cost the lives of several of the King's officers, is the honoured guest of a Society which is recognised, however unworthy it may be, as the only authority on the science of aeronautics in this country. Truly we are a curious people.—C. G. G.

THE BEARDMORE AUSTRO-DAIMLER DESIGN AERO ENGINE

—: WINS THE:—

£5,000

Prize offered by the Schicht Co. of Austria, to the winner of a circular flight extending over three days,

Proving it yet again to be

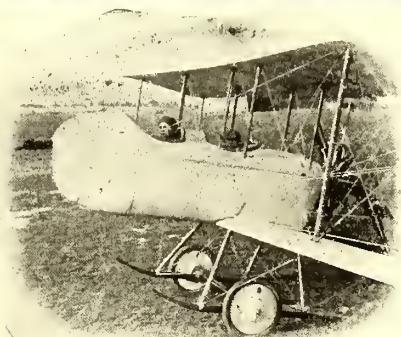
THE WORLD'S FINEST AEROPLANE ENGINE.

BEARDMORE AUSTRO-DAIMLER AERO ENGINE, LTD.
36, VICTORIA STREET, LONDON, S.W.

Selling Representatives—

AUSTRIAN-DAIMLER MOTOR CO., LTD.
112, GREAT PORTLAND STREET, LONDON, W.

C.D.C.



LEARN TO FLY at the VICKERS FLYING SCHOOL BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

VICKERS LIMITED,

Aviation Department, Vickers House,
Broadway, Westminster, S.W.



The Duties of an Inspection Department.

BY W. E. de B. WHITTAKER.

It is one of the sadnesses of human nature that, after appointing a mass of officials to carry out a set piece of work, it is none the less necessary to appoint a further series of officials of equal skill to supervise and examine the work done by the first number. The Government decides that it will carry out a new system of Poor Law reform. A number of gentlemen selected for their trust in the party beliefs of the moment are then appointed to administer under the new conditions. But the Government, full of political gratitude though it may be, is not quite devoid of sense, and immediately selects another excellent body of gentlemen to ensure that the poor get some share of the new benefits an enlightened nation desire them to possess. And so the world goes on.

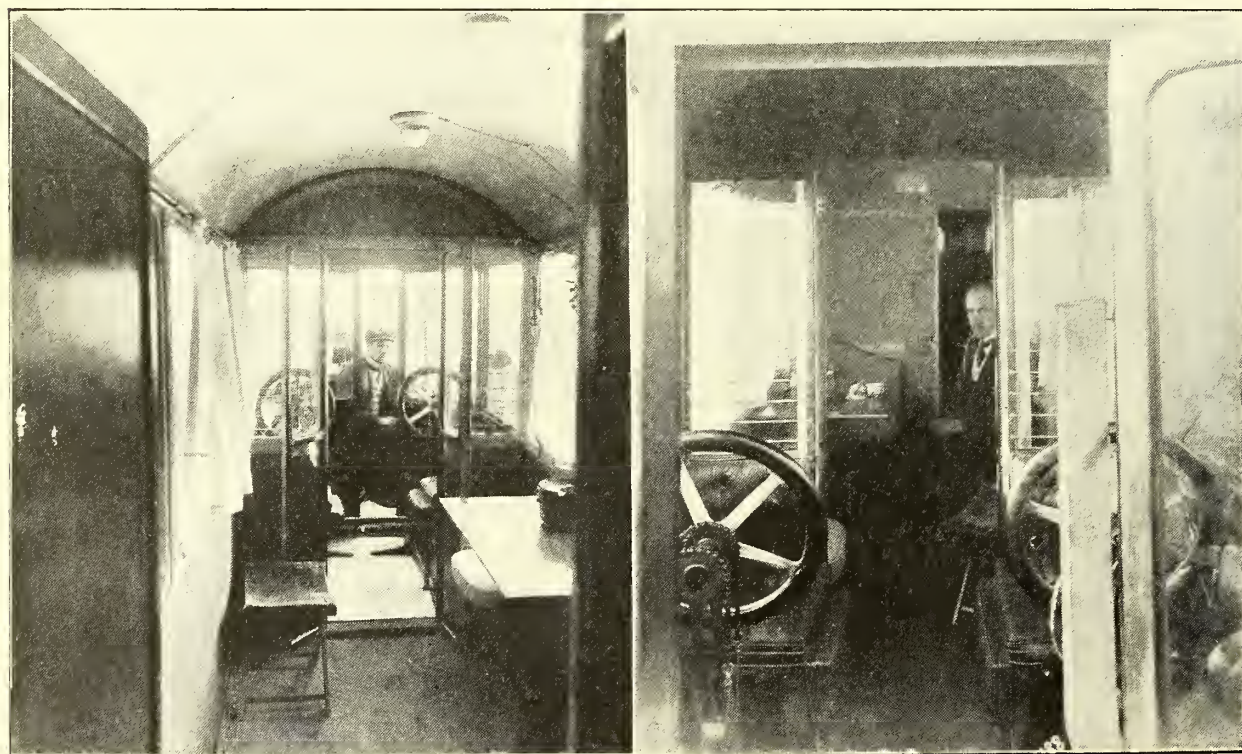
Such is the process in ordinary methods of administration when only money is at stake. There are certain other cases where inspection is carried on that human life be saved. Machinery in private factories is liable to inspection at any moment by a Government inspector who may cause the manager to be fined if anything is wrong. Taxi-cabs must pass a proper examination before they enter the public service. Railway accidents, after the corpses have been decently buried, are investigated, and the findings published in the public prints.

There is nothing in this world at the present time in which proper inspection is of greater importance than in aviation. The science is barely ten years old in practice, and it is only during the last five years that any real progress has been made. The feebleness

of the first light engines made for use in aeroplanes rendered it necessary to make the machine itself of as light construction as possible. In the search for lightness, strength of construction was forgotten, and in the result several pilots lost their lives. The science is yet in its infancy, and all that is done is experimental, however advanced it may seem. All that is known to-day is but the beginning of all that can be known in the course of another decade.

The majority of the flying in Great Britain during the next few years will be carried on by soldiers and sailors using Government-owned machines. Such private flying as may continue will mainly be in the hands of a few experimenters, who know enough, as a rule, to avoid serious accident, and a few exhibition fliers, who, after all, rank as circus performers and must take similar risks.

No interference with the eccentric habits of such private aviators would be brooked for a moment, nor would anything be gained should anything of this nature be attempted. But soldiers and sailors flying as a part of the country's defence forces, for pay which in the whole year would hardly pay for the clothes of one or two of the more popular exhibition pilots, deserve at least to have their lives protected as best may be. They fly under orders, whatever may be the reading of Army orders on the subject. No soldier disobeys an order if it is humanly possible to obey. Therefore all the material used in the R.F.C. should be of the most efficient type, maintained constantly in the best possible condition.



Two interior views of the Sikorsky biplane "Ilya Mourametz." On the left, looking forward through the cabin; on the right, a view rearward from the observation platform.

For some time such inspection and selection duties, so far as Government aircraft were concerned, was carried out by the Royal Aircraft Factory, which, itself a constructional department, was hardly fitted for the duty. However the officials of that office carried out their duties, they were still open to continual criticism from all sources. Scandal after scandal, true or untrue, attacked the fair fame of the Factory, which, if it did no more, certainly earned a reputation for inherent stupidity of a high order. Various Factory-built machines gave trouble; Factory figures were not always reliable; manufacturers made innumerable complaints, and many delays were caused. The result, as it would seem, was that in the course of last year a separate Inspection Department was formed, under the supreme control of the Director of Military Aeronautics and the immediate command of Major J. D. B. Fulton, R.A., C.B.

This Inspection Department fulfils a long-felt want in the selection of machines for the Army. Any maker who desires to obtain Government orders, and imagines he has an aeroplane efficient enough for the purpose, can approach the A.I.D. and have the machine inspected and passed through various tests at Farnborough. If successful and all other details being in proper order, the maker then stands a chance of Government orders. Even if no orders come his way at once, the knowledge gained, if properly used, will bring him success in the future. No suggestion of bias can be laid at the door of the new office. It does not build aeroplanes, or even the best engines in the world. Its officials have no business other than that connected with their official work. It is under the command of a soldier, and its methods are those of any other military department.

Each machine purchased for the Army must pass the A.I.D. before acceptance. Its construction is scrutinised with no less attention than are its flying capabilities. There is no likelihood of carelessness passing through unnoticed.

Yet the new department is the scapegoat for many sins of others. There are many who said at the time of recent fatalities in the Military Wing (R.F.C.)

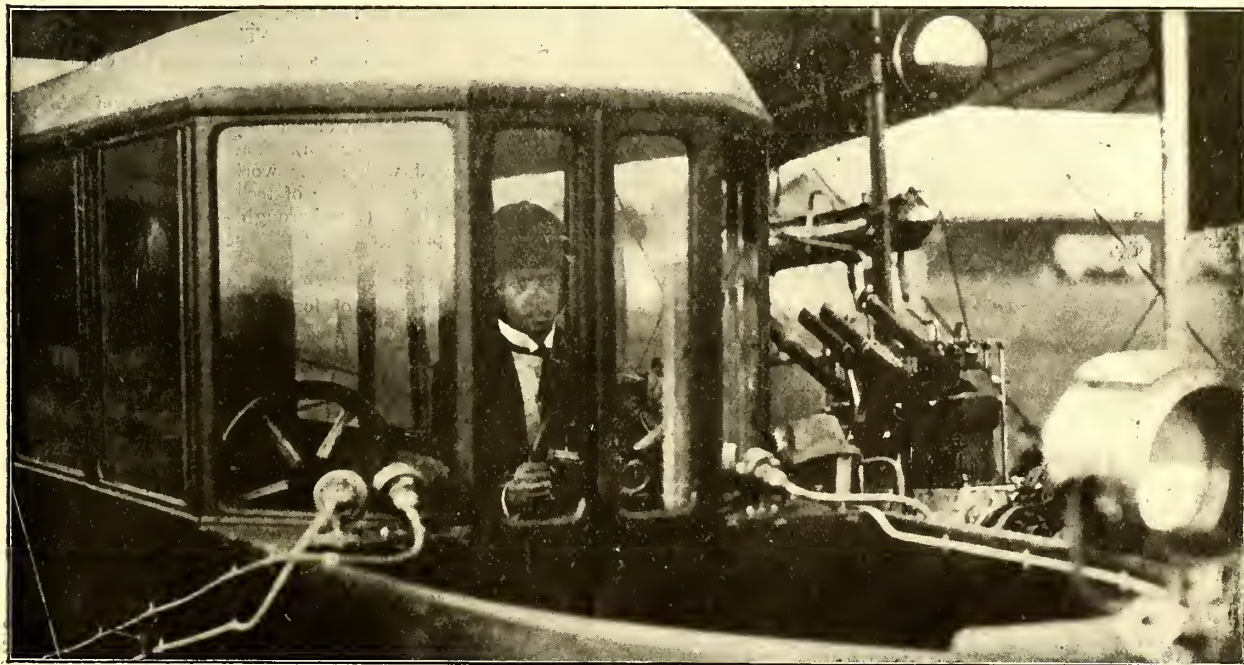
that if the A.I.D. had done its work efficiently no such accidents could have happened. British methods of government have strange ways. No department at the time of its formation is voted or given sufficient money for the work it ought to do. For all works of real utility, public money is difficult to obtain. The result is that most newly formed offices have to curtail the possible area of their operations very considerably. In the case of the A.I.D. it would seem as though this lack of money (I pretend to no inside information) has prevented any further work than the inspecting of machines before acceptance. The condition of machines already in the Army is no concern of the new body.

It is difficult to see at first sight how any central department could keep any adequate control over the efficiency of all the aeroplanes in the Army. The responsibility would be very great. Each day slight repairs are made to individual machines in different squadrons—repairs which, slight though they are, can, if done badly, cause very serious accidents. Yet it cannot be argued that the A.I.D. should accept responsibility for such accidents. Though they could not be responsible, they would certainly be blamed. Therefore it is well if some very clear and definite line of action be laid down for its future duties.

Should the A.I.D. carry out quarterly inspections of all aircraft in the service, then it would be known definitely at what date of four in the year any machine was in perfect order. The area of investigation after an accident would be much narrowed. After each inspection, which would be very thorough, the responsibility for the safety of each machine would be assumed by the various flight commanders until the date of the next inspection. All repairs made in the intervening periods would be entered up in the A.I.D. books at the end of the quarter, with the names of those who executed the work.

Any work carried out by the A.I.D. should do nothing to lessen the responsibility of the squadron staffs. Do that, and you at once destroy one of the greatest safeguards of the aeronautical service.

(To be continued.)



M. Sikorsky in the pilot's seat of his famous biplane. The observation platform is still further in front, as may be seen.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," May 6th :—

Admiralty, May 5th.—Royal Naval Reserve.—The undermentioned probationary sub-lieutenants have been confirmed in the rank of sub-lieutenant: Christopher Draper, Hans Acworth Busk, and Edward Thomas Newton-Clare. Dated January 27th, 1914.

Royal Flying Corps.—Lord Edward Grosvenor, to the "Pembroke," additional, for Calshot Naval Air Station, as flying officer, to date May 6th.

NAVAL.

The following appointments were made at the Admiralty on May 6th :—

Lieutenants.—J. T. Cull and B. D. Ash, to the "Pembroke," additional, as flying officers, for the Isle of Grain Naval Air Station, for advanced course of instruction, to date April 29th. E. T. R. Chambers, H. A. Williamson, R. J. Bone, and E. R. C. Nanson, to the "Pembroke," additional, as flying officers, for Calshot, Isle of Grain, Yarmouth, and Felixstowe Naval Air Station respectively, all to date May 5th.

Royal Marines.—Captain, R.M.L.I., C. F. Kilner, to the "Pembroke," additional, as flying officer, for Dundee Naval Air Station, to date May 5th.

Lieutenant, R.M.L.I., C. E. Robinson, to the "Pembroke," additional, as flying officer, for the Isle of Grain Naval Air Station, for advanced course of instruction, to date April 29th.

Royal Naval Reserve.—Lieutenant H. E. M. Watkins, to the "Pembroke," additional, as flying officer, for the Isle of Grain Naval Air Station, for advanced course of instruction, to date April 29th.

Sub-Lieutenants.—I. H. W. S. Dalrymple-Clark, to the "Pembroke," additional, as flying officer, for Eastchurch Naval Flying School, to date May 5th.

Probationary Sub-Lieutenants.—C. Draper, H. A. Busk, and E. T. Newton-Clare, confirmed in the rank of sub-lieutenant, R.N.R., and appointed to the "Pembroke," additional, as flying officers, for the Isle of Grain Naval Air Station, for advanced course of instruction, all to date April 29th.

At Eastchurch on Monday and Tuesday it was very windy and there was no flying. On Wednesday No. 16 Avro (100-h.p.), 40 Caudron (50-h.p.), 31 Henry Farman (70-h.p.), 49 B.E. (70-h.p.), 36 Deperdussin (Anzani, 70-h.p.) were out in spite of the wind, and Cmdr. Samson, R.N., on No. 10 Short (140-h.p.), went to Isle of Grain.

On Thursday it was still very windy, and two machines only were out—No. 50 B.E. (70-h.p.) and No. 16 Avro (100-h.p.). On Friday Eng.-Lt. Briggs, R.N., on No. 39 Blériot (80-h.p. Le Rhone), returned from Farnborough. No. 45 Caudron (50-h.p.) was the only one up besides.

On Saturday No. 45 Caudron (50-h.p.) and Eng.-Lt. Briggs on No. 39 Blériot flew to Sheerness over the Danish Royal Yacht.

On Wednesday, Major Gordon, R.M.L.I., made a trip from Dundee to St. Andrews on Short tractor (100-h.p. Gnome) No. 74, accompanied by A.M. Crancott. He circled the "Mars" training-ship and then flew down the Tay and round the coast to St. Andrews, where he landed safely. He then went aboard H.M.S. "Dreadnought" for lunch, after which he made several flights over the bay with some of the officers as passengers. He started back for Dundee at 3.30 and flew at a height of from 500 to 1,000 ft. On Friday afternoon Major Gordon was out again in the same machine, and after a few minutes' flight was forced to descend with an engine stoppage. He made a second start, but had not gone far when a rain-storm made flying disagreeable, and he landed. He was accompanied by Capt. Fane, of H.M.S. "Vulcan," and at their third attempt made off in the direction of Montrose. When still five miles from that place they encountered so heavy rain that they turned and came back to Dundee, when the machine was put back in the hangar.

Capt. Barnby, R.M.L.I., and half the men at Dundee went on leave about the middle of the week as the first batch re-

turned. The work of levelling up the ground between the sheds and slipway is making good progress.

MILITARY.

The following communiqué has been received :—

Royal Flying Corps (Military Wing).—Diary of work for week ending May 1st, 1914 :—

No. 2.—All 3 "flights" were out most days during the week engaged in reconnaissance training. Two machines were flown from Farnborough to Montrose.

The Squadron is busy preparing for the move southwards to the Concentration Camp at Netheravon.

No. 3.—Numerous cross-country reconnaissance flights were made by the pilots of this Squadron, and observation of Artillery fire was carried out on April 28th and April 29th.

No. 4.—The pilots of each "flight" were out daily, the work consisting chiefly of cross-country reconnaissance and observation of Artillery fire. Some night flying was also carried out.

No. 5.—The pilots of this Squadron were out daily, and numerous cross-country reconnaissance flights were made.

No. 6.—Flying took place daily over the country round Aldershot.

Aircraft Park.—Repair work on Aircraft and M.T. and technical instruction of recruits were continued.

Headquarter Flight.—Experimental work on various lines was carried out. Several kite ascents and free balloon runs were also made.

General News.—Two more aeroplane squadrons commenced forming at Farnborough on May 1st. The squadrons will be commanded by Captain Longcroft and Captain J. Salmond, who are being transferred from No. 2 Squadron and the Central Flying School. War Office, May 5th, 1914.

The following communiqué has been received :—

Royal Flying Corps (Military Wing).—Diary of work for week ending May 9th, 1914 :—

No. 2 Squadron (Montrose).—The officer and N.C.O. pilots of this squadron were out daily throughout the week, practising reconnaissance. The preparations for the move southwards are nearly complete. [The move southward is now in progress, these notes referring to last week's operations.—Ed.]

No. 3 Squadron (Netheravon).—Observation of artillery fire was carried out on several days.

No. 4 Squadron (Netheravon).—Besides practising reconnaissance work, half of "B" flight took part in a Southern Command exercise during the week. The new power in the workshops is proving satisfactory.

No. 5 Squadron (Farnborough).—The pilots of this squadron carried out observation flights over the district round Aldershot.

No. 6 Squadron (Farnborough).—The machines of "A" and "B" flights were out from day to day.

Aircraft Park (Farnborough).—The workshops have been kept fully employed with repair work on aircraft and M.T., and with the receipt and issue of technical stores of all kinds.

Headquarter Flight (Farnborough).—The flight was engaged in kiting, photography, and experimental work throughout the week.

Nos. 1 and 7 Squadrons (Farnborough).—These two new squadrons are in process of formation. Personnel, machines, and M.T. will be gradually drafted to them.

War Office, May 11th, 1914.

Captain J. M. Salmond, who is appointed to command a Squadron of the Royal Flying Corps (Military Wing), has been for a considerable time an instructor at the Central Flying School, where he has done much excellent work. His certificate, No. 272, was taken at the Grahame-White School at Hendon, and was passed on August 13th, 1912.

A surprise visit was paid on Saturday by Prince Henry of Prussia and Mr. Churchill to the R.F.C. station at Netheravon, where Squadrons 3 and 4 are quartered. Two machines were brought out and made short flights, in spite of bad weather.

A Newcastle correspondent writes that negotiations have been in progress between the War Office and Mr. Milburn, of the Laverick Hall Farm, near Blyth, for the establishing of a camp on the farm lands for No. 2 Squadron R.F.C. The only

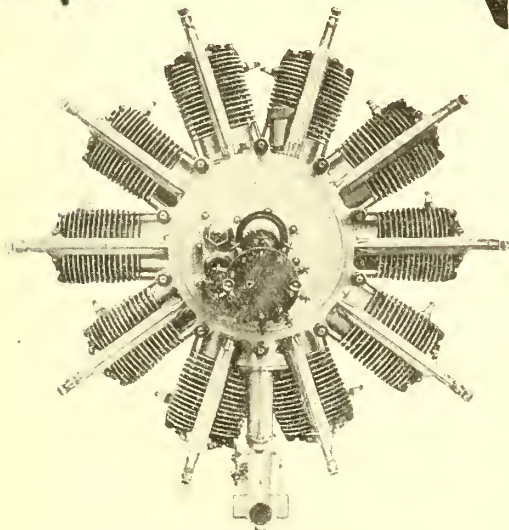
CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS, AEROPLANE WORKS AND FLYING GROUNDS— EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9. MINSTER-ON-SEA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

"ANZANI"



60/65 H.P. 10-CYLINDER.

THE BRITISH ANZANI ENGINE CO. LTD.

30 Regent Street, Piccadilly Circus, London, S.W.

Phone 280 Gerrard

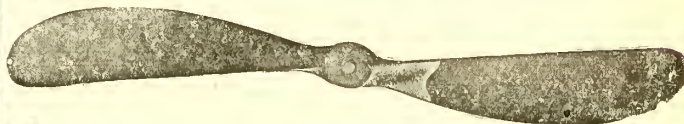
Wire "Santochimo, London."

FIRST and FOREMOST!

THE WORLD'S GREATEST RECORDS

are held by

**CHAUVIÈRE'S
INTEGRAL PROPELLER**



**Special process of Metal Tipping for
Seaplanes.**

**All Standard sizes in stock at our
London Works.**

Sole Agents for Great Britain and the Colonies for

FABBRI'S PHOTOGRAPHIC APPARATUS.

Full particulars from

THE INTEGRAL PROPELLER CO., LTD.,

1b, ELTHORNE ROAD, UPPER HOLLOWAY, N.

Telephone: Hornsey 2345. Telegrams: "Avirop (Upholl), London."

P.C.B. 1

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

thing which stood in the way was an undertaking from the War Office that they would be responsible for any damage done to the pastures and the hedges by the public who would be attracted to the spot. Laverick Hall Farm stands on a commanding altitude about three and a half miles from Blyth, and provides a good view of the sea. It lies on the line usually taken by the Army biplanes on their flights from York to Montrose, and so it is expected that a permanent landing ground may be established in the neighbourhood.

One learns with interest that one of the latest efforts of the Royal Aircraft Factory to deprive the independent aeroplane designer of War Office orders has proved a failure. Some months ago—as was noted in *THE AEROPLANE* at the time—orders were given out to various firms for a number of tractor biplanes known as "Mark B.E.8." These are a modification of the "Mark B.E.2," but have staggered planes and 80-h.p. Gnome engines. A quantity of these have been delivered to the R.A.F., and, being exact to specification, they have to be accepted and paid for. It is found, however, that, owing to defective design, certain alterations will be necessary before they can be passed for use by the R.F.C. The rudder-posts are too light and will all have to be altered. The warping wings are to be replaced by aileron control. Also, it is reported that these machines do not fly properly, and so will require certain alterations in general disposition of parts before they are safe. All this will, of course, mean more work for "contractors," but meantime it is delaying the production of new and improved types to independent designs.

According to information from the Royal Aircraft Factory, the "Mark R.E." tractor biplanes (120-h.p. Beardmore-Austro-Daimler engines), which are now coming through, will be allotted to Capt. Longcroft's squadron (No. 1.) Despite the fact that these machines are not particularly good for observation purposes, they are really excellent flying machines, and, after the terrible lessons of the past twelve months, it may be assumed that they are as well made as it is possible for R.A.F. work to be, so that one may expect some good flying to be done ere long by this squadron. A certain number of R.E.s are also to go to Capt. Becke's squadron (No. 6).

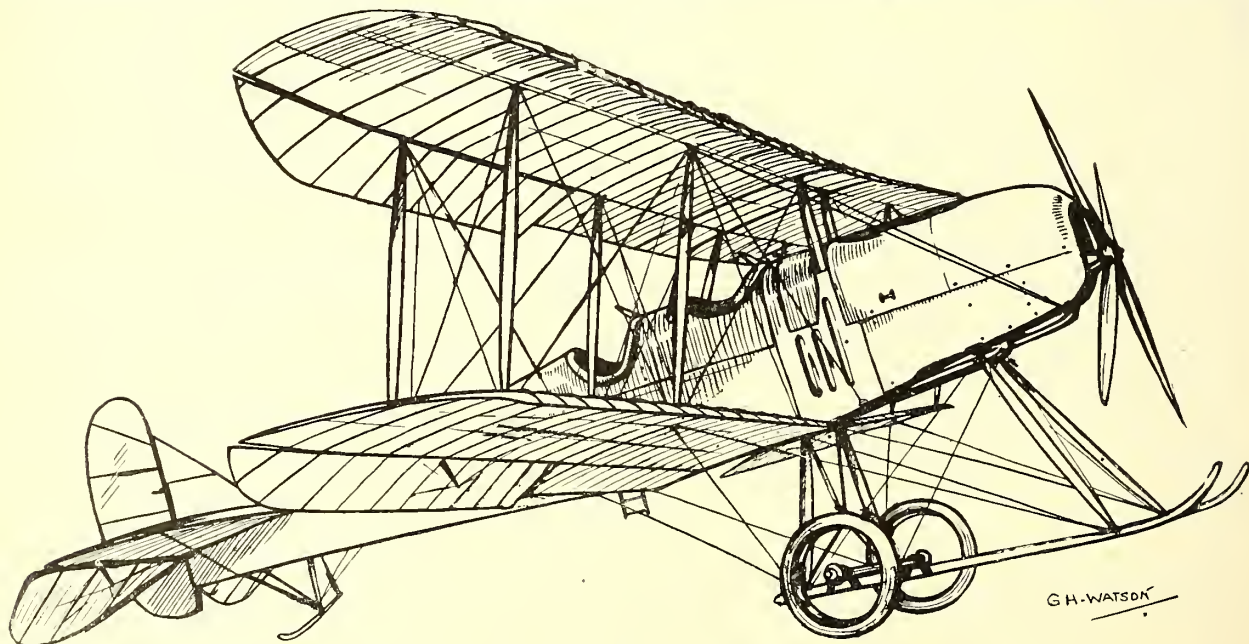
On Monday, Major Raleigh flew a B.E. from Netheravon to Warsash. He flew the last few miles with two big ends of the 70-h.p. Renault slack the white-metal having run. On Tuesday a new 70-h.p. Renault arrived at Warsash from Farnborough. The engine was fitted and some flights made. During the day some photographs were taken from the machine. On Wednesday the B.E. was out again in very gusty weather and

received a severe shaking, and was not a pleasant sight to watch.

Early morning flying has been the rule with Squadron 2 at Montrose during the past week. On Monday, at 5, Major Burke, Capts. Todd and Dawes, and Lieut. Noel were out, using B.E.s 228 and 328, and at 6 p.m. Capt. Dawes flew B.E.229, Capt. Waldron B.E.222, and Capt. Todd B.E.328, breaking a part of the chassis in landing. On Tuesday morning Capt. Dawes flew B.E.229 and Lieut. Noel B.E.328, and in the evening many of the officers were out. Capt. Waldron took Capt. Lyon for a flight on Wednesday morning in B.E.229, and Lieut. Dawes flew B.E.327. In the forenoon Lieut. Harvey-Kelly flew B.E.222 and Lieut. Dawes B.E.327, while the chassis of B.E.225 was broken for a second time in succession while attempting to rise. The dismal weather of Thursday prevented much flying, and only some learners were out in the afternoon, Sergts. Jillings, Keslyer and Nethey doing straights on Maurice Farman 215. The only flights for Friday were one by Major Burke in B.E.228 and three by Lieut. Noel in B.E.328, all being of 10 mins.' duration. On Saturday evening Lieut. Empson flew B.E.331 and Lieut. Noel B.E.328, which finished the week's flying at Montrose.

No. 2 Squadron moved from their headquarters in Montrose during the week-end, as a completely mobilised unit for war, to join the concentration camp at Netheravon during June. The squadron on trek will comprise 12 officers, 2 warrant officers, and 129 N.C.O.s and men, and 14 B.E. biplanes. The journey is designed to be a test of transport and of the stores of the squadron, not of flying. The journey will extend for about a fortnight, and this will allow for each third day being allowed for a halt for repairs and overhaul. The start was made at 4 o'clock on Sunday morning, and the route taken will be via Perth to Stirling. The stoppages en route will be Stirling, Edinburgh, Berwick, Blyth, West Hartlepool, York, Lincoln, Northampton, and Oxford, the total distance being 621 miles.

The transport will comprise squadron headquarters and three flights, the transport of the former being one light tender, one repair-lorry, and two heavy lorries, and the flights each of two light aeroplane tenders, three heavy tenders, one motor repair-lorry, two trailers and two motor-cycles—in all, including officers' cars, the total number of vehicles will be about thirty-six. The flight of the machines from Broomfield commenced on Monday morning in charge of Major Burke, Capt. Dawes second in command, Capt. Waldron, Capt. Todd and Lieut. Dawes flight commanders, and Lieuts. Corballis, Empson, Harvey-Kelly, Noel, Rodwell, and Martyn as flying officers.



A sketch of one of the "Mark R.E." biplanes referred to above. These, as may be seen, are modified B.E.s and are fitted with 120-h.p. Beardmore-Austro-Daimler engines. The wing curve is not supposed to be accurately delineated.

It is expected that one or two of the officers will return for a second machine, and that the squadron will remain away until the middle of July.

FRANCE.

On May 4th a French military aeroplane, piloted by Capt. Zaragoff, who was accompanied by a mechanic, landed at Saint Marie-aux-Chênes, in Lorraine. The descent was made in the presence of two revenue officers and some gendarmes, but the aviators restarted and flew back to France.

On May 3rd Capt. Challe, of the Centre at Buc, left Brest on his Farman biplane and flew to Saint Brieuc, where he was brought down for lack of petrol.

On May 5th Lieut. Chabert, piloting a Blériot (100-h.p. Gnome), and accompanied by a passenger, flew from Lyons to Reims and back in very bad weather.

The military dirigible "Eugène-Montgolfier" left her hangar at Issy on May 8th and flew over Paris. During the trip Adjutant Chelle, who was adjusting the radiator fan, overbalanced himself as the result of a sudden movement of the nacelle and caught his hand in the fan, losing two fingers. After first-aid had been rendered on board the victim was taken to hospital.

The cruiser "Foudre," the mother-ship of the French naval aeronautical section, has now been fitted with a launching platform. M. René Caudron used this for the first time on May 9th, successfully getting off in a hydro-biplane. The platform is not intended for alighting purposes.

Morocco.

The escadrille hitherto stationed at Gouraud, which has been operating around Taza, is now to be installed at Souk-el-Arba, near Tessa. The section consists of two biplanes and two monoplanes, and Capt. Balsan, Lieut. de Morlaie, and Adjutant Feisterstein form the personnel of the little escadrille. Twenty soldier-mechanics are attached to the station, together with two armed automobiles for the transport of petrol, oil, and spares.

On May 5th Lieut. Sainte-Logue was killed in Morocco while flying between Meknès and Ito. He capsized his machine and received fatal injuries, but his passenger escaped.

On May 6th an escadrille of five aeroplanes, fully equipped with arms, ammunition and stores, left the aerodrome at Kassarath to make a "raid" from Tunis to Oudja and back, the distance by the route to be followed being 4,000 kms. An automobile team is accompanying the escadrille. The pilots are Lieut. Battini (in command), Lieut. Ménard, Lieut. Cheutin, Quartermaster Hurard, and Sergt. Benoit, each of whom carried a mechanic.

GERMANY.

On May 5th a magnificent organised flight was made by German military aviators. The air stations at Cologne, Posen, Königsberg, Halberstadt, Metz, Strasburg, Darmstadt, and Graudenz were each ordered to turn out three machines, each of which was to carry a passenger besides the pilot, and fly to Doeberitz, near Berlin. Out of the eight detachments, seven accomplished their itineraries, which were predetermined so as to be at least 500 kms. long, the sole exception being the Darmstadt section, which did not start owing to local weather trouble. The best flight was made by the Cologne officers, who arrived at Doeberitz in three hours, a journey which requires $9\frac{1}{2}$ hours in the best trains. The aviators stationed at Doeberitz were ordered to fly round Grossenayn, Halberstadt, and back, also a distance of 500 kms. Ten officers started, and all returned safely.

On May 9th Lieuts. Faber and Kurz were making a flight between Schwerin and Posen when they fell from 650 ft. when endeavouring to make a landing at Stettin, and were killed.

Lieut. Carganico did a remarkably fine performance on May 4th, when he conveyed the chief of the Flying Battalion No. 4, Major Siegert, from Strasburg to Doeberitz within 5 hours. The distance is exactly 580 kilometres (350 miles). Major Siegert carries out all his inspection tours by aeroplane.

A new air station, both military and civil, will shortly be formed at Koeslin. It is said that one company will erect

works which will employ a thousand men. Eighty pilots a year will be trained at this station.

The dirigible "Sachsen," which has recently been modified, is now the largest of the Zeppelin fleet. She is 149 metres (460 ft.) long, 15 metres (46 ft.) diameter, and has 17 ballonnets which contain 21,000 c.m. (725,000 c.f.) of gas. She carries a useful weight of 2,250 lbs. The dirigible is to be stationed at Leipzig.

On May 4th the "Hansa" was alighting at Fuhlshüttel when it collided with the hangar, receiving considerable damage.

The first aeronautic crew of the Fuhlshüttel Naval Airship Department has been dispatched to Friedrichshafen to commence its training on L. III, the new marine vessel built at Friedrichshafen. Until L. III has finished its trials, "Hansa" remains at Fuhlshüttel and then goes to Potsdam to dislodge the "Sachsen," which ultimately takes up its home in Leipzig, where the "Schütte-Lanz" is now undergoing repairs.

A new system of airship shed was demonstrated at Berlin-Lichtenberg on May 5th by the Airship Hall Mfg. Co. to representatives of the army and navy. The design consists of iron fences, which can be dismantled and erected either by machinery or hand with the greatest of ease, and are covered in by canvas drawn up over the framework by means of sliding shafts. The iron uprights are about 8 metres apart and 42 metres (140 ft.) high; it would need twenty-five to house a Zeppelin. The advantage is that the hangar can be quickly put up where necessary and with due consideration of aerial currents, as, given sufficient assistance, the shed can be erected within twenty minutes. A drawback, however, would be the transport of the iron fences.—B.

On May 11th the new naval Zeppelin L3 (LZ24), which is to replace the ill-fated L1 and L2, began her tests at Friedrichshafen.

ITALY.

I hear that a Curtiss, with a completely enclosed cabin, is on order for the Naval Seaplane School at Venice.

The Admiralty's dirigible, "City of Ferrara," is to be presented with a battle flag by the ladies of that city.

Experiments in towing, night flying, and wireless telephony have been going on recently at Rome, undertaken by the dirigible staff and the Specialist Corps stationed outside the city.

M.III, which has been keeping the staff occupied for so long, is now ready to take up her position in the fleet.

A meeting of those occupying the upper rooms in Military aviation was held last week at Turin to look into the cause of the fatal accident to Lieutenants Napoli and Battaglino, and to decide what steps should be taken to prevent such collapses. I gather that the actual cause of the disaster is only to be arrived at by guessing, and that one of the two explanations given last week is about correct. The Commission seem to think that the case warrants radical modification of all the monoplanes in military use.

Stranded cables are to become universal, all machines are to be examined for fagged wing spars at once, the lower longerons of all fuselages of which the design permits such treatment are to be strengthened by an armoured wood cross-piece, additional wires are to be fitted to the rudders, and some contrivance to be devised to prevent a broken wire flying out and damaging or jamming in some other part or organ of a machine. Presumably, all this will cause a certain amount of temporary standing still in the succession of fine cross-country flights accomplished recently. These exploits have become quite common, and one feels that the recording of a common event makes it appear important and retards the conception of flight as an everyday habit.

"La Stampa" informs us that the Government has been offered by the widow of Signor Manio, the late aviator's 50 Blériot Gnome, and has accepted the machine. Signor Manio died at Lisbon last year as the result of a bad landing. The machine, which has been fitted with new wings, will be named after its late owner.—T. S. H.

DENMARK.

The two Donnet flying-boats of the Danish navy, which were very difficult to get out of the water with passengers, now have

been slightly altered, the planes being enlarged, and that has given good results. And now the supermarines and the sub-marines are making manoeuvres in the Danish belts and bays. —H.I.

NORWAY.

The well-known army aviator, Capt. Sem Jacobsen, took "The Conqueror of the South Pole," Capt. Amundsen, who is a licensed aviator himself, up for a 2½-hours' flight the other day on an army Maurice Farman biplane at Christiania.

Lt. Trygve Gran, who took part in the Antarctic voyage of Capt. Scott and was for a time at Hendon, is now learning to fly a Blériot monoplane at Buc. This summer he will fly from Aberdeen to Norway, which will probably take 4½ hours to fulfil. —H.I.

ROUMANIA.

The Roumanian military flying school at Bucharest, equipped with Bristol machines, opened its course on April 1st last, under the direction of Capts. Popovici and Berioniadi, and instructional work is now in full swing.

A commission composed of two Roumanian officers are en route for England, there to observe the tests of a new Bristol biplane for the Roumanian army. Lieut. N. Protopopescu, an officer of the Roumanian reserve, after a flight in a strong wind on a Blériot monoplane, made a bad landing, in which he broke both his legs.

MEXICO.

On Sunday, April 26th, Lieut. P. N. L. Bellinger, an ex-pupil of the Curtiss School, in a Curtiss flying-boat, according to the "New York Sun," made a flight with the object of ascertaining whether the San Francisco Bridge on the Inter-oceanic narrow-gauge railway, about 25 miles to the north-west of Vera Cruz, was still intact. The bridge is on the route to Mexico City that was taken by General Scott in the war with Mexico. That line of advance to the capital is still favoured in the war plans, and much depends upon the result of Lieut. Bellinger's observations. He reported in person to Rear-Admiral Fletcher, U.S.N.

It is stated that four persons were killed and eight injured at Mazatlan by a bomb dropped from a biplane employed by the rebels.

Foreign Notes.

France.

After considerable discussion the Aero Club of France has decided to hold the Gordon-Bennett race at the Blériot aerodrome at Buc.

It is said that Mr. Mortimer Singer has engaged M. Maicon as a sort of aerial jockey, and that he intends to enter him for all the important events in the aviation calendar, keeping a special stud of racing machines for this purpose. Mr. Singer is at present on the Riviera.

On Saturday last M. Maurice Farman left Mourmelon at 5 a.m. accompanied by a passenger and arrived at Buc at 7.20 a.m.

On Sunday last an aviation meeting took place at the Blériot Aerodrome at Buc in bad weather. After a taxi race between MM. Barault and Desille, MM. Garros and Audemars gave a demonstration of simultaneous looping. They finished up their demonstration by a "carousel arien."

The only other pilot was Cuendet, who let off a parachute with a dummy figure from 400 metres. The dummy was killed very dead as the parachute did not open. Later, Cuendet gave a very fine exhibition of looping and quick banked turns on the Blériot looper. He was third pilot to Bidot and Deroye.

Another pioneer has succumbed to looping. M. Vidart, the pilot of early Deperdussins, a hero of the European circuit and the Paris-Rome competition, looped 15 times at Etampes on May 3rd on a Deperdussin (Le Rhone). This appears to be M. Vidart's "swan song," as the announcement of his retreat from aviation was made two days later.

On Sunday of last week M. Maurice Farman, accompanied by a passenger, flew from Buc to Châlons in two hours, where he inspected the Farman repair works and the Farman machines belonging to the escadrilles.

On Thursday of last week Mr. T. Elder Hearn left Amiens on his tandem Blériot at 3.20 a.m. and, after crossing the Channel at a considerable altitude, landed at Folkestone at 6.40. Later he left for Hendon, but was brought down at Gillingham through the failure of his oil supply. At a later hour he restarted and reached Hendon safely.

On May 8th M. Rugère, flying a Voisin seaplane (120-h.p. Salmson engine) at Fréjus, climbed to 2,100 metres (6,900 ft.) in 55 mins., carrying a passenger. This is claimed to be a seaplane record.

M. Garaix on his Schmitt biplane continues to make records, beating a whole batch of them on April 22nd. These were the speed records at 10, 20, 30, 40, 50 kms., with 2, 3, and 4 passengers, and at 100 kms. with 2 and with 4 passengers, the establishment of speed records for 10, 20, 30, 40, 50 and 100 kms. with 6 passengers, the distance record with 3 passengers (110 kms.), duration record with 3 passengers (1 hr. 2 mins. 23 secs). All made in one flight of 110 kms. with 6 passengers. His passengers weighed 380 kilos plus 10 kilos of ballast; Garaix himself weighs 85 kilos—a total live weight of 475 kilos (1,045 lbs.), and petrol and oil to the extent of 145 kilos—a total load of 620 kilos (1,364 lbs.). He covered the first 50 kms. in 30 mins (62 m.p.h.), and 107 kms. in the hour (66 m.p.h.).

Mr. Henri Farman is busy testing a new landing carriage which it is claimed will make the machine uncapsizable when on the ground. The Paris Show "one-and-a-half" plane which, it will be remembered, carries the wheels on the lower plane and the nacelle on the top plane, has also been tried by MM. Fischer and Bill with great success.

M. Emile Védrines has again failed by a small number of votes to secure election to the French Chamber of Deputies, and M. Hélén, who also stood as a candidate, failed dismally.

Apocryphal the recent collision at Buc, M. Bidot states that he meant to pass over Deroye's machine at a distance of 25 metres, and that the combination of the blinding sunshine in his eyes and the fact that Deroye's machine rose at the fatal moment accounts for the catastrophe. M. Blériot, on the other hand, states that Deroye's machine did not rise and that the accident was entirely due to Bidot's non-observance of the F.A.I. rule which forbids passing another machine at less than 50 metres above, below, or on either side.

The first half-year of the competition for the Pommery Cup opens on May 15th. A prize of 10,000 francs is offered to the pilot who, leaving France, covers the greatest distance during 36 hours.

Germany.

Fokker has been looping at Schwerin with an 80-h.p. Fokker monoplane to prove that Pégoud's performance can be emulated on an absolutely normal standard type.

Commenting on the Olympia Show, the "German Aerial Journal" of April 29th, 1914, says:—"The Olympia Exhibition, while showing quite enough of the characteristics of the English aeroplane trade, did not as a matter of fact make a very good showing. We can, without any exaggeration, assert that in Germany we are accustomed to the carrying out of the constructional work, particularly in details, very much more carefully and in a more purposeful manner. Now what does the backwardness of the English aeroplane trade above referred to consist of? Chiefly of insufficiently worked out details of construction. The aeroplanes are, as they say in the builders' shops, 'knocked up.' They certainly fulfil their functions; they do fly, but their designs are by no means carried out as they should be, considering the position of the aeroplane trade of to-day. This is particularly to be remarked in the details, and we find details in English machines that the smallest builder in Germany no longer fits; for example, the sharp inset of the round part at the foot of the struts for the joint still to be seen on many machines. The reason of this seems to be that in England engineers still concern themselves very little, if at all, with aeroplane construction, and while we in Germany have the great satisfaction of seeing the science of flying technics, aerodynamics and allied subjects, taken up in nearly all the technical, high and middle schools, England has only a few experimenting places and no teaching concerns dealing with this science." [With this criticism one must to an extent agree. Our only "experimenting places," the R.A.F. and N.P.L.,

THE BRITISH CAUDRON COMPANY, LTD.

(Late the W. H. EWEN AVIATION Co., Ltd.)

British built **CAUDRON** monoplanes, biplanes, hydro-aeroplanes (combined wheels and floats.)

The Flying School, which is one of the most successful in this or any country, will be carried on as usual at The London Aerodrome, Hendon.

THE WORLD'S DURATION RECORD was raised to 16 hours, 28min., 56 secs. by M. Poulet on a **CAUDRON Biplane** on April 26.

Telephone: 50 Kingsbury.

The Aircraft Co., Ltd.

Hold the **SOLE RIGHTS DIRECT**
from the **FARMAN BROTHERS**

for the building of

HENRY & MAURICE FARMAN

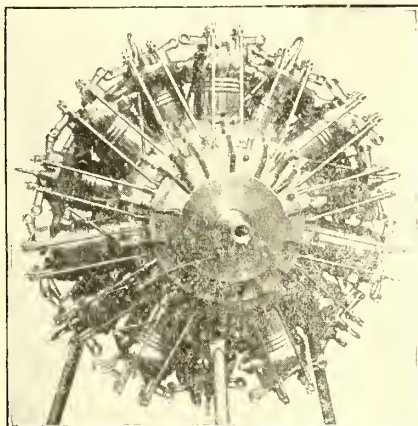
Aeroplanes AND Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.

SALMSON AERO-ENGINES SYSTEM CANTON-UNNE.



Phone No.:
7 Stroud.

Tele.
Address:
Humpidge.
Cainscross.

The Dudbridge Iron Works, Ltd. STROUD, ENGLAND.

*Who are the sole concessionaires for these engines for the
British Empire.*

London Office:—**87, Victoria Street, S.W.**

'Phone No.: 7026 Victoria. Tele. Address: "Aeroflight Vic London."

"PERRY-BEADLE"

BRITISH BUILT

FLYING BOATS AND AEROPLANES.

Every class of Aeronautical
constructional work carried out.
Send us your enquiries for work
to be executed to your own
ideas. Our staff of highly
trained and technical designers
:: :: is at your disposal :: ::

Offices and Works:

GOULD ROAD, TWICKENHAM.

Telephone—RICHMOND 1109.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

keep their results to themselves for the glorification of Government built machines in opposition to "the Trade." Still, one would rather have roughly-built machines which fly well than aeroplanes so loaded with details that they can scarcely stagger off the ground. Also, except for Government designed machines, we hardly ever hear of a British aeroplane breaking in the air, whereas in Germany such breakages seem fairly usual.—Ed.]

Roald Amundsen, who is himself an aviator, and Capt. Sem Jacobsen, the well-known Norwegian officer, the other day visited the Johannisthal Aerodrome, by Berlin, and took special interest in the Ago Aircraft Factory, and were afterwards taken on a flight on an Ago biplane.—Hr.

Flying took place at Johannisthal daily during the month of April, the sum total being 4,558 ascents by 151 pilots, lasting 591 hrs. 48 mins. The Jeannin pilot Ballod made the largest number of ascents, 313, and spent the most time aloft, 35 hrs. 34 mins.

The first brevet gained by a German woman as pilot of an airship was taken by an Alsatian, Fräulein Riote, who passed her examination, together with the Swedish aviator, Lieut. von Muhl, on board "P.L. 6" at Leipzig. Her examiners were the Parseval steersman, Capt. Dinglinger, Dr. Rotzoll, and Capt. von Kleist.

Dr. Filchner, the leader of the German South Pole expedition, who will accompany Roald Amundsen on his new voyage in quest of the North Pole, is taking aviation lessons at Johannisthal, as Argus flying-machines will form a part of the outfit for the northern journey.

Schroeter, of the Albatros works, carried out his 2,000th ascent at Johannisthal last week, taking up a military pupil as passenger.

Victor Stoeffler, the Alsatian record-man, was married at Strasbourg on April 24th to Fräulein Johanna Rapp.

The well-known German outfitters, Messrs. Rudolph Hertzog, are sending out an aviation expedition to the German colonies in East, South, and South-West Africa; headquarters are Swakopmund, where the firm has a depot. Bruno Buechner, the old racing champion, is at the head of the expedition. The present proprietor of the firm, Herr Rudolph Hertzog, is a noted sportsman and very keen on automobilism and motor-boating.—B.

Garros has challenged one and all German pilots to a match in Berlin. It will be interesting to learn who accepts the challenge.

Austria.

MM. Lacrouze and Leshermes gave a demonstration of fancy flying at Vienna recently and took up numerous passengers. Many military officers were present at the display.

The Vienna County Council has presented a sum of 35,000 kroners to the Austrian Aero Club for the Aspern meeting in June. The Ministry of Public Works has donated 15,000 kroners for the like purpose.

Aircraft works have been founded at Buda-Pesth under the title of "Lloyd Aircraft Co., Ltd.," being subsidised by the Hungarian Government. The machines will be built on the O.F.W. patents, and Lieut. Bier, formerly a military pilot of renown, who has been at Leipzig for some time, goes to Buda-Pesth as director.—B.

Hungary.

On May 9th, Baron Pasquier gave a demonstration of looping before a large crowd at Buda-Pesth, among the spectators being the Archduchess Augusta, the Archduke Joseph and Prince Louis of Bavaria.

Italy.

The recent Centenary Commemoration of Napoleon the Great in the Isle of Elba brought to that famous and infamous land two aeroplanes. Mocaico flew over from Pisa on a De Antoni, while Landini arrived in the old style with his box. Both evoked great enthusiasm. What would not the Illustrious Dead have done had these vehicles been to hand 100 years ago? Anyhow, being of the present, one rejoices with Pisa, whose aerodrome, San Giusto, is looking up again after its too long rest.

M. Pegoud's exhibition on the "saboted" Blériot looper last Wednesday at Milan was a real triumph. His antics when flying the right way up appear to have put his sixteen consecutive loops quite in the shade. Though an ordinary working day, enormous crowds assisted, emotion and commotion being extreme. So all ends happily. The gate was given to the fund for assisting indigent and aged Pressmen.—T. S. H.

Sweden.

Dr. Angstrom has made some fine flights over Stockholm on the new monoplane of the Swedish Aircraft Factory, Ltd. The well-known Farman pilot, Capt. Sundstedt, has had a chute, smashing up his new Henri Farman biplane and getting some injuries himself.

The well-known Swedish aviator, Dr. Thülin, has taken delivery of a Morane-Saulnier monoplane, and on Saturday, April 25th, with another Swedish aviator, Engineer Ask, as passenger, flew it from Villacoublay via Brussels and Cleve to Bremen, and on Tuesday to Lübeck, at which ancient city engine trouble once more forced him to land, and on Monday he flew via Copenhagen to Landskrona, his dwelling city.—Hr.

U. S. A.

On Tuesday, April 28th, an American pilot of the name of Charles C. Roystone was killed at San Diego by a spiral nose dive of the machine he was flying—a monoplane built by the Stutz Aeroplane Manufacturing Co., and variously stated in the same account to be of his own design and of that of an hitherto unheard of "English monoplane expert," one W. E. Gibson. The machine, according to illustrations in the American papers, looked like a badly made Deperdussin with increased area forward.

It is said that Mr. Barney Oldfield, the American crack car racer, is coming to England with Mr. De Lloyd Thompson, the American acrobatic aviator, with intent to "challenge the world" at Brooklands and Hendon. They will be accompanied by Mr. Lincoln Beachy, who also intends to race in England.

Lieut. Porte, R.N., is busy at the Curtiss factory superintending the construction of the Rodman Wanamaker Transatlantic flier. Consistent progress is reported at the factory and Lieut. Porte is more than ever hopeful of success in the big venture. In other directions much work is being done. Lieut. Porte has notified Mr. Glenn Curtiss of the discovery and development of a scientific instrument which records the speed



The great Sikorsky biplane. The machine on the right is an 80-h.p. Gnome-engined Sikorsky of normal dimensions, from which some idea of the size of the former may be obtained. It will be noticed that the big machine in this picture only has two of her four motors in position.

of a flying machine in relation to the earth. It also indicates the direction in which the machine is flying. If as accurate as claimed, Mr. Curtiss says this will prove an immense advantage to the pilot of the big flying boat. With present instruments, an aviator knows the speed at which his aeroplane is flying through the air, but has no way of proving his speed between fixed points. He reports much encouraging information regarding meteorological conditions and navigation, and feels more than ever the chances are good for success.

Active work at the Curtiss Training Camp on Lake Keuka began in earnest at the end of April. There are a number of students, and many visitors have flown the past few days, among them Mr. Albert Bond Lambert, of St. Louis, a wealthy patron of aviation. Mr. J. Lansing Callan is the pilot in charge of instruction. The records of last spring's graduates afford good evidence of the advantages of his method of training. Among them were L. A. Vilas, J. B. R. Verplanck, Raymond V. Morris, W. Steve Macgordon, William Thaw, H. P. Harris, Ellwood Doherty, and others, whose present prominence would suggest years, instead of months, of experience. For instruction Mr. Callan is using the mahogany boat exhibited at the New York Motor-boat Show and at the Toronto Show. Among the several machines in daily use at the camp is the new Curtiss speed tractor designed for army use. Mr. Curtiss has made several flights with it, and its tuning up will be continued by Mr. Morris.

Curtiss motors have started the season well. T. C. Macaulay is now the holder of the official altitude record for the United States. In the San Francisco to Bakersfield cross-country race of 325 miles Curtiss motors, according to a telegram from the coast, took first and second places.

The Burgess-Dunne waterplane continues to do good work at Marblehead, U.S.A. The dimensions of the aircraft are:—Length, 24 ft. 8 ins.; span, 47 ft.; total surface, 482 sq. ft. An O.X. Curtiss 100-h.p. is fitted, and the total weight of the machine is 1,450 lbs.

An April 22nd, a vessel was making signals of distress off Marblehead, Mass., during a thick fog, so Mr. W. Burgess flew out in the direction of the siren calls on his Dunne water-

plane. He discovered that the steamer was stopped by an engine breakdown, which was being repaired by the staff. He then returned to shore with messages to various people concerned, who put off in boats to render assistance.

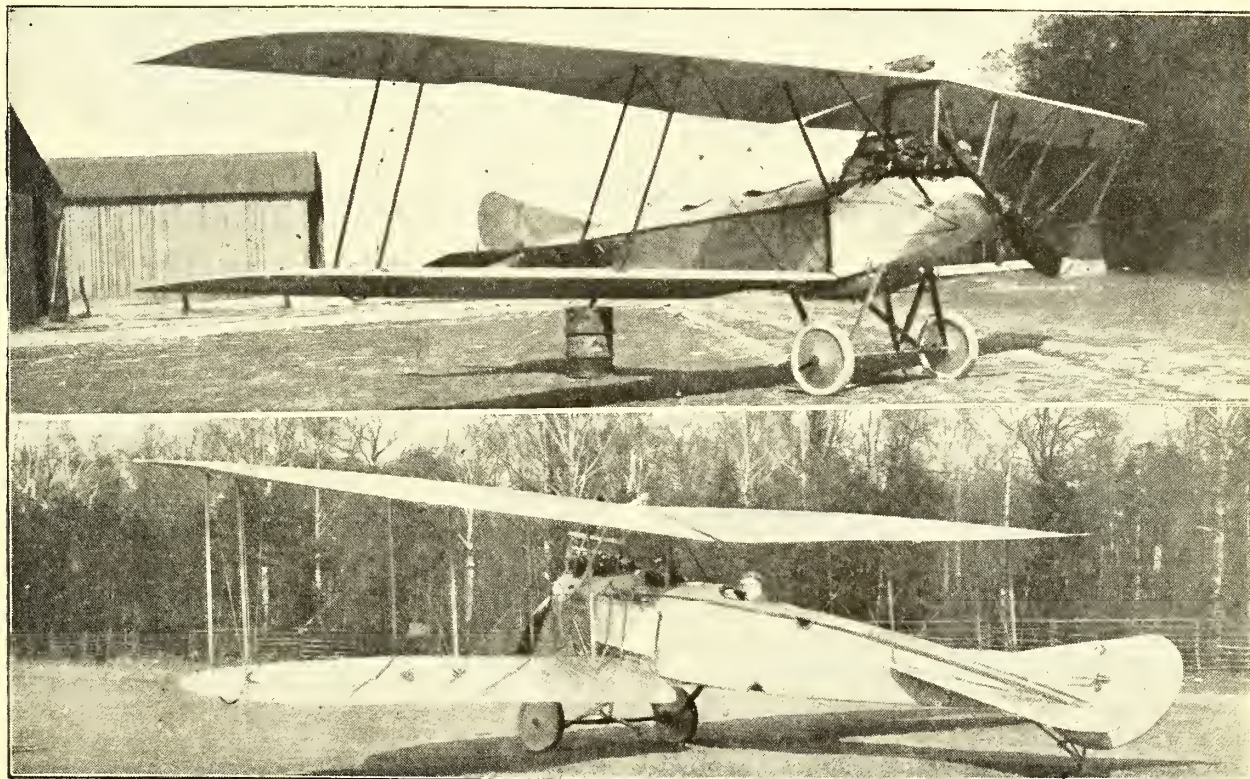
On April 6th Mr. Glenn Martin broke the American height record by flying to 14,200 ft. at Pomona, Cal.

Alleged Flights over Prohibited Areas.

M. Salmel, who has been giving "Daily Mail" exhibitions in Devon and Cornwall was summoned to appear at Plympton Petty Sessions on Monday last for having navigated an aircraft over a prohibited area in the Plymouth district. Mr. S. Pearce, solicitor, appeared for the Director of Public Prosecutions. It was stated that Salmel was unable to appear, and the case was adjourned until the 22nd inst. A similar summons, alleging infringements of the Aerial Navigation Act at Genlee Point, was to have been heard at Torpoint, Cornwall, on Tuesday, but was by consent adjourned to June 9th.

The Farnborough Collision.

As this paper goes to press it becomes known that a collision in the air took place at Farnborough on Tuesday evening. Captain Anderson (Black Watch), a flight commander, with Air-Mechanic Carter, on a Sopwith biplane (80 Gnome), and Lieut. Wilson, R.F.C. (Special Reserve), in a B.E., are reported to have collided at a height of 400 feet when both were attempting to land in the dangerously restricted ground on Farnborough Common. Captain Anderson and Air-Mechanic Carter were killed on the spot, but Mr. Wilson is reported as being severely though not dangerously injured. Both the officers and the air-mechanic belonged to the 5th Squadron, R.F.C. Details of the accident are at present unavailable.



Two new D.F.W.s.—Above, the latest 150-h.p. Scout; and below, the 100-h.p. which does 68 m.p.h. and climbs 3,280 feet (1,000 metres) in 5 mins. 15 secs, carrying pilot, passenger, and fuel for 6 hours.

Mr. Lanchester on Aeroplanes.

On Tuesday evening, May 5th, the annual "James Forrest" lecture to the Institution of Civil Engineers was given by Mr. Lanchester on the subject of "The Flying Machine from an Engineering Standpoint." In the main, Mr. Lanchester's lecture as given may be described as an abridged edition of his work on "Aerial Flight," brought up to date, supplemented by a number of striking confirmations of his early hypotheses drawn from recent experimental results, mostly attained by the National Physical Laboratory.

Mr. Lanchester is eminently entitled to congratulation on the substantial accuracy of his mathematical investigations—particularly when it is remembered that they were made at a time when no actual aeroplanes had ever flown, and very few people believed they ever would do so. Also the lecture will probably serve a useful purpose by persuading some few members of the Institute of Civil Engineers that aeroplanes do exist, that there is a considerable amount of accurate data available for designing purposes, and that there are large possibilities of future development in view.

There is, unfortunately, ground for suspicion that the Advisory Committee on Aeronautics and the National Physical Laboratory, whose main, almost only, channel of communication with the world of practical aeronautics is via the Royal Aircraft Factory, have been copiously informed, by the R.A.F., of the wonderful results obtained by R.A.F. designed machines based on their own experimental work, while the results, in many cases, superior, obtained by independent constructors, have been discreetly passed over.

The result, for which neither the Advisory Committee nor the N.P.L. are primarily responsible, is that these two bodies have formed a sort of Mutual Admiration Society, and Mr. Lanchester being incomparably the most brilliant member of the Advisory Committee, the N.P.L.'s work has, in the main, been confined to repeating—with variations and refinements—his experiments, the R.A.F., meanwhile, encouraging them by assurances of the marvellous exploits of the machines which they have designed in accordance with the results so obtained.

It is not, therefore, surprising that while Mr. Lanchester claimed that the science of aeroplane design had progressed further in this country than anywhere else, the R.A.F. should alone have been mentioned in referring to actual achievement, the name of the only independent British manufacturer mentioned occurring in connection with seaplanes, where the R.A.F. has notoriously not been successful, and, curiously enough, in reference to a particular type of machine—the flying boat—whose real value is, despite indisputable advantages in some respects, at present distinctly problematical.

On this subject it is extremely regrettable that Mr. Lanchester should have stated in a lecture to which there is no discussion and before an audience likely to accept the statement as authoritative, that the single float (flying boat) type is the only possible one for real sea work. True, Mr. Lanchester pointed out some of the disadvantages of the flying boat from the aerodynamic point of view, but his conclusions are distinctly at variance with the experience of successful constructors of seaplanes.

It is a matter of extreme regret that men of the standing in the scientific world of those composing the Advisory Committee for Aeronautics and the N.P.L. should be so out of touch with the work of the aeroplane industry. Their statements are accepted as authoritative by those not directly acquainted with the facts, and may often seriously prejudice the prospects of constructors who have quite sound ideas which are not quite in accord with the views of these experts of limited experience.—W. H. S.

Dr. Thurston on Air Speed Meters.

On Wednesday evening, May 6th, Mr. A. P. Thurston read a paper before the Aeronautical Society on "The Measurement of Air Speed," wherein he described the various principles by which air speeds may be measured and certain instruments involving the use of these various methods.

Of the greatest interest amongst these—from the practical point of view—are the "Clift" and the "Ogilvie" air speed indicators, which were described in considerable detail, together with the results of certain tests made on these instruments by Dr. Thurston, which give both instruments a very high character for accuracy and reliability. Both these instruments are

of the spring-controlled type, and are not disturbed in their readings by accelerations of the machine on which they are carried—as are all gravity-controlled instruments such as those using a liquid pressure gauge, or in which the motion of a vane lifts a weight, and, consequently, the Clift and Ogilvie instruments give correct readings of air speed during sudden changes of speed, such as those due to gusts or resulting from vigorous movements of the controls.

After these instruments, Mr. Thurston proceeded to the description of the method devised by Prof. Morris, of the East London College, for measuring air speeds, which depends on the cooling effect of the air current on a fine wire—the cooling being measured electrically by the change of resistance with temperature. Several interesting results obtained by this method were shown, and the instrument promises to be of considerable value for exploring the air flow round models of aeroplanes or parts thereof.

In the ensuing discussion, the Chairman (Mr. Horace Darwin), remarked on the simplicity and relatively crude construction of the experimental Ogilvie indicator, and the excellent results obtained, as indicating excellence of design. Mr. E. Hollocombe Clift mentioned the difficulty experienced in fitting air speed indicators to actual machines in a position where their readings were not affected by disturbances due to parts of the machine itself. He pointed out that when fixed in certain positions a speed-meter might show greater speed than the machine was actually doing, and expressed his opinion that the maker of instruments who could always locate that position would do exceedingly good business.—W. H. S.

Certain Misconceptions.

It is generally assumed that any two aeroplanes which possess the same "factor of safety"—calculated by the same method, of course—are, in fact, equally safe from the point of view of strength alone. This assumption is incorrect.

Two machines of generally similar type, of equal horse-power, and approximately of equal performance may, for instance, be, in the one case, of heavy construction, but of extremely low head resistance, and, in the second, much lighter in weight but of appreciably greater resistance. The first machine would, if dived steeply, acquire a very high maximum speed as compared with the second, and so might be subjected to much greater stresses in flattening out, compared with normal stresses, than the second. Similarly, this heavier, low resistance machine would lose speed—when struck by an end on gust—much less quickly than the lighter higher resistance machine, both because of the lower resistance and of the greater momentum, and thus may be more seriously stressed by gust shocks.

Hence, when comparing factors of safety as between different machines their relative ratio of weight to head resistance should be taken into account, and approximately the factors of safety, for all air-imposed stresses, for equal security should be inversely proportional to the gliding angle of the machines, i.e., a machine with a gliding angle of 1 in 8 requires a factor of safety of twice that desirable in a machine having a gliding angle of 1 in 4.

In comparing aeroplane motors of different type on a weight-basis it is often assumed that two motors of equal horse-power which, with their fuel and oil for certain number of hours run at full load, are of equal weight, will be equally satisfactory for use in a machine which is intended to fly for that number of hours.

This is not the case actually. An air-cooled motor of 100-h.p. weighs, say, 300 lbs., and uses 80 lbs. of fuel and oil per hour. A water-cooled engine of equal power with water and radiators weighs 450 lbs., and uses only 60 lbs. of fuel and oil per hour. With fuel and oil for $7\frac{1}{2}$ hours running both weigh 900 lbs. Fitted to equally efficient machines, and with these amounts of fuel on board, they will give equal results. But for every hour run the lighter but less efficiently engined machine gains 20 lbs. over its heavier and more efficient competitor, and it should, therefore, continually gain either in speed and distance if the motor is kept running at full power, or in duration and distance if the motor is throttled down as the total load decreases. Hence, the duration at which the heavier engine becomes as good as the lighter motor is appreciably greater than that indicated by equality of total weight of motor and fuel.—W. H. S.

ACCLES & POLLOCK, LIMITED

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
ONE QUALITY—THE BEST

OLD BURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.

DOPE WITH
NOVAVIA

9, Coral Street, W.C.

THE DOPE

TRADE MARK 'TABLOID' BRAND ADJUSTABLE
HEAD DRESSING, Compressed (Regd. Design)

Cap-like, instantly applied without skill,
stays in position, washable.

Aviators should carry it in readiness

10d. each, complete. All Dealers.

BURROUGHS WELLCOME & CO., LONDON



BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works : **BROOKLANDS AERODROME, WEYBRIDGE, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone : Byfleet 190.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts
should be made.

For Great Britain and the Oversea Dominions :

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

TEL

The Best Revolution Speed Indicator

Being mechanically operated possesses the following advantages—

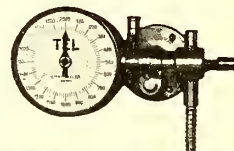
Over 2000 TEL instruments supplied for use by the French, Russian, Italian and Spanish Naval and Military Depts. and the British Admiralty.

THE HASLER CO., 26 Victoria St. Westminster, London, S.W.
Phone Vict. 431

Uniform Dial Graduation

Not affected by changes in temperature or vibration

Indicates with same accuracy high and low speeds.



CELLON DOPE WOOD VARNISH TRANSPARENT SHEETS

LTD.

CONTRACTORS TO H.M. GOVERNMENT.

17, OLD BROAD STREET, LONDON, E.C. Telegrams : "AJAWB LONDON."

Telephone : 5359 London Wall.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Wood v. Steel for Aeroplanes.

By W. H. SAYERS.

In the "Engineer" of April 24th an editorial article does me the honour of disagreeing very markedly with my recent article on "Wood and Steel in Aeroplane Construction."

Setting forth the reasons for the non-use of steel at present, the writer in the "Engineer" suggests that they are, firstly, the difficulty of obtaining tube of good stream line section, and, secondly, a misconception of the relative advantages of wood and metal—a misconception held to be well illustrated by the aforesaid article in this paper.

Objection is taken to the tensile strength with which ash is credited (13,000 lbs. per square inch) as being almost the highest figure recorded—while that of mild steel was taken at only 60,000 lbs., which is somewhat on the low side. Then the steel sections are stated not to show an economical distribution of material—the I section being referred to as having ridiculously narrow flanges; and, finally, it is stated that only tensile stresses of wood have been taken into account, and neither the compression stresses nor the shear stresses parallel to the fibre. It is further stated that a maximum shear stress in that direction of from 35 to 54 lbs. per square inch is required—according to Unwin—to give the same factor of safety in the wood spar as that given by me taking tensile stresses only into account.

The "Engineer" goes on to state that comparisons of strength for equal weight are futile—the object being not to produce the lightest machine, but the safest. It is suggested that the steel tubes of the fuselage might be used to store petrol and oil.

The objection to steel in light gauges on the score of possible accidental deformation is admitted as one of "sundry minor objections," as is that of its lack of resilience—while wood is credited with the property of "storing up the effect of shock."

I have replied to this article in a letter to the Editor of the "Engineer," which is reproduced below:—

"In your editorial columns of April 24th you refer to an article of mine appearing in *THE AEROPLANE* on the above question, and state that the whole article is 'full of misconceptions.' It is with some regret that I resort to the 'tu quoque,' but the misconceptions are on your side.

"Dealing with your points seriatim:

"There is no difficulty in obtaining 'stream-line' steel tube of fair form, and with a much better length to breadth ratio than 2 to 1—but, even if there were, such sections are an extremely inefficient disposition of material, and much better struts are obtained by using tube of circular section and fitting a 'gaiter' of light wood or thin sheet metal to give the required stream line form. Also in mild steel, at any rate, at least two firms in this country make bellied steel tubes for aeroplane struts, successfully, without welding. The difficulty of obtaining light sections mentioned in my article has reference mainly to H. T. steels and to sections other than tubes.

"Your reference to the tensile strength of ash taken (13,000 lbs. per sq. inch) as being 'about the highest ever recorded,' is, perhaps, justified in relation to ordinary ash used for other purposes—but the ash used for aeroplane work is of the very best, and ash is actually going out of use for aeroplane work, because it is rapidly approaching the impossible to obtain ash of the quality required. To your criticism as to the misleading effect of using tensile strength only as the strength criterion of wood, I must agree—it was an oversight on my part—and the compression strength should have been used—10,000 lbs. per sq. inch, instead of 13,000—which renders the comparison somewhat more favourable as between ash and steel. I may say in this connection that tests by bending to destruction of certain built-up spars of ash made by an English firm of aeroplane builders, actually gave breaking stresses of over 9,500 lbs. per square inch, no allowance being made for the weakening due to the method of jointing used which involved a considerable number of screws through the flanges.

"As to shear stresses parallel with the fibres, a very elementary analysis shows that for the spar in question,

as it would be used in an actual aeroplane, these stresses are microscopic—even compared with the figures you suggest as proper—and that, as stated above, spars tested to destruction do not fail in this way.

"Generally, in regard to your remarks on the stress values allowed in the article in question, these approximate very closely to those specified by the Air Department of the Admiralty for both wood and steel—and, consequently, whether they meet with your approval or not, they are what the aeroplane manufacturer has to work to. Also my remarks should, I think, have made sufficiently clear that steels of higher tensile strength than 27 tons per square inch were known to aeroplane builders—and that there were reasons—largely connected with the probable history of the machine after it had left its maker's works, why they were not regarded with favour for general constructional purposes.

"As to your criticism of the steel sections used as illustrations—the use of the I section and the relative stresses given for the tube and the I, should indicate that the inefficiency of a tube for the purpose was known—and the article itself condemns the I section in fairly strong terms. But were your implied suggestion, that the flanges should be wider, followed, the lack of local strength of this girder would become even more pronounced; while the Clement-Bayard type of pressed channel section, which apparently meets with your approval, is even worse in this respect.

"As to the weight versus safety point—may I point out that, in the opinion of all those who have most claim to be considered as authorities in this matter, an aeroplane of reasonable strength, which flies well and with an ample reserve of power, is safer than a stronger machine which flies sluggishly—(compare the mileage per fatal accident in Germany—where heavy, largely steel-built, machines with a relatively small surplus of power predominate—with that of France—where machines often of unduly light build, but with a large reserve of power, and the consequent capacity to pull themselves out of dangerous positions, are the rule). As the question of building a machine of reasonable strength and adequate surplus power ultimately resolves itself into a strength for weight problem, the comparison on an equal weight basis is the only one of any value.

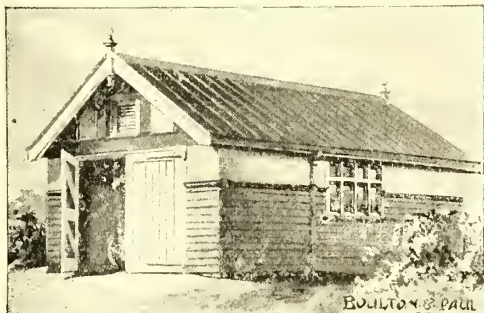
"Your comments admit, as a minor matter, the difficulty of lack of local strength in light steel sections. After four years during which I have assisted at the building, testing, breaking up and re-building of quite a large proportion of the experimental machines built during that period by some of the most able aeroplane constructors in the world, may I offer as an opinion, not altogether unsupported by experience—that this question of local strength is a vital one—and that a very considerable number of aeroplane accidents have occurred through breakage of parts damaged by altogether other stresses than those due to working loads.

"Your reference to wood 'possessing the property of storing up the effects of shock' is cryptic in the extreme. Whatever it may mean, wood does not suffer from fatigue as a result of shock loading to anything like the extent to which steel does—neither within the limited life of an aeroplane, is it deteriorated by constant vibration—as steel undoubtedly is."

[As one with many years' experience of steel, I am naturally prejudiced in favour of that material, but I admit the suitability of wood when used under proper conditions. When someone produces a walking-stick of steel tube which for the same weight has the toughness of an ashplant and the stiffness and resistance to shock of a blackthorn it will be time enough to think of using steel spars and chassis struts. I cannot, in some six years' experience of aeroplanes recollect any properly used wooden member giving way in this country, and in the only cases of which I know abroad the wood has been improperly used, generally in direct tension, which is criminal. On the other hand, I know of numerous cases where steel has failed without apparent sufficient cause, and, of course, wires which break at much less than their theoretic strength are quite common.—Ed.]

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR HOUSES, CYCLE HOUSES.

GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

"Beautifully smooth running, thereby adding to general comfort, in addition to saving engine power."—AEROPLANE.

PALMER CORD TYRES

fitted to your car will give you greater speed, greater comfort and greater safety, with reduced petrol consumption.

In the Palmer Cord Tyre Book you will find proof of the above. May we send you a copy?

Will you write for it to-day?

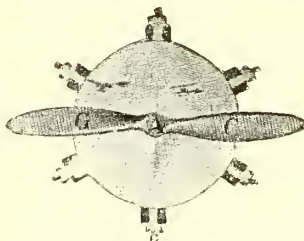
THE PALMER TYRE LTD.,

119, 121, 123, Shaftesbury Avenue,
London, W.C.

Telephone—GERRARD 1214 (4 lines).

EVERYTHING FOR AVIATION & AVIATOR "THE LATEST & THE BEST."

Booking
Office for
Passenger



and
Exhibition
Flights.

GENERAL AVIATION CONTRACTORS, Ltd.,
Phone: 280 Gerrard. 30, Regent St., Piccadilly, S.W.
Wire: Santochimo, London
Cables: Aeros, Milan.
and at Milan.



NOTHING BETTER
A. V. ROE & CO., LTD., MANCHESTER

HANGARS.

Any size built and fitted with
PERFECT SLIDING DOORS

obviating all the disadvantages of every present system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

GARAGES, CLUB HOUSES
and other buildings. *Estimates Free.*

WIRE-WOVE ROOFING COMPANY,
108, Queen Victoria St., London, E.C.

C. G. SPENCER & SONS.
HIGHBURY GROVE, LONDON, N.

Manufacturers of
Aeroplanes, Airships, Balloons, and
Aeronautical Apparatus of every description,
Fabric, Propellers and Accessories.

Write for List.

Telegrams: "AERONAUT, LONDON."

Telephone: DALSTON 1893.

The Schneider Cup Lunch.

On Tuesday the members of the Royal Aero Club entertained Messrs. Sopwith and Pixton to lunch at the Royal Automobile Club in honour of their victory in the Schneider Cup Race. Lord Tullibardine, the chairman, in proposing their health, said he was there to congratulate a British constructor and a British pilot on the first British victory in an International event on a British machine. We need not grudge our French friends the Gnome's share in the victory, and he hoped the Government engine competition would produce something to beat the French. No practical man objected to the Government producing a motor of its own if it let private makers have orders for it when it was satisfactory. He referred to Mr. Sopwith's brilliance as a pilot, and said he was now one of the foremost constructors in the world. His theory that a biplane could beat a monoplane with the same power was justified. Mr. Pixton had proved himself to be the equal of the best pilots in the world. The greatest race, the Gordon-Bennett, was still to be held, and all would be glad to see Messrs. Sopwith and Pixton win it.

Mr. Sopwith, visibly moved, said he could not express his appreciation of the present assembly. He then gave a neat and humorous account of the vicissitudes of the Schneider Cup machine, already known to readers of *THE AEROPLANE*, including its somersault in Southampton Water, its rebuilding in four days, and its stealthy trials in the Thames. He bore sincere testimony to the sportsmanship of the French competitors at Monaco, and said he hoped we should treat our visitors as well next year—we could not treat them better. He said the Gnome engine had done more for aviation than had any constructor who was ever born. It was a proverb in aviation that a tea-tray would fly with a Gnome to drive it. As for the race, he had never seen a race flown as Mr. Pixton flew for the Schneider Cup, he never missed a pylon

by more than inches. Further, he said that but for Government support, which kept his works going, they would never have gone to Monaco. The winning machine was the direct outcome of those being built by him to General Henderson's requirements. He hoped a British maker would win the Gordon-Bennett this year, and retain the Schneider Cup next year.

Mr. Pixton, suffused with modesty, said any pilot could have won on the machine he had to fly.

Colonel Holden, vice-chairman of the R.Ae.C., proposing the guests, said that General Henderson had done more for aviation than anyone could reasonably expect. [With which sentiment all will cordially agree.—Ed.] Mr. Edge, chairman of the S.M.M. & T., was a winner of the only motor-car Gordon-Bennett ever won by this country.

General Henderson said how pleased he was to be there to congratulate his friend Mr. Sopwith, and his own former instructor in flying, Mr. Pixton, on their joint victory. Mr. Sopwith and other British makers had now produced aeroplanes better than any in the world, and foreign pilots never were better than British pilots, they merely had more opportunities.

Mr. Edge said the S.M.M. & T. could be depended upon to spend any profits they made out of aero-shows on helping aviation forward. He was glad to see that Mr. Sopwith was aiming at flexibility in speed, as he himself had done in the early days of motor cars.

Mr. Grunholdt proposed the health of the chairman, who responded in his usual witty manner, when once done with serious subjects, and a most enjoyable gathering, which included most of the important people connected with British aviation, dissembled itself.

A Concession to R.Ae.C. Members.

The Directors of the Grahame-White Aviation Company, Ltd., have kindly granted free admission to the London Aerodrome, Hendon, for the remainder of the year 1914, to all members of the Royal Aero Club on presentation of their club membership card (motor cars must be paid for).

In view of the big events booked for this year, such as the Aerial Derby next week, the London-Paris and back race, and several other important competitions, members are highly indebted to the Hendon authorities for their generous action.

The Sussex County Aero Club.

On Saturday, May 16th, and Sunday, Mr. J. E. B. Thornely, on his Farman biplane, whatever the weather, will give demonstrations of looping the loop. Messrs. Pashley Brothers and Mr. Elliot will also give exhibitions and take passengers.—H. GONNE, Sec.

A Record of Observation.

In "Animal Flight," sub-entitled "A Record of Observation," by Dr. E. H. Hankin, M.A., Sc.D., will be found an immense amount of carefully compiled records as to the actual facts of flight of certain birds, beasts, and insects, and even of fishes. To the care and accuracy of Dr. Hankin's work in this respect it is difficult to offer sufficient tribute, and on this account this book is of great interest to all students of animal flight. Dr. Hankin's conclusions as to the actual source of energy which enables birds to soar are inevitably open to criticism, in particular his suggestion that air under certain conditions can suffer some physical or chemical change at the will of the bird, seem to require rather more than the purely negative evidence which he brings forward.

All the conditions under which Dr. Hankin found "soarability" to exist are conditions under which one would expect



Mr. Richard T. Gates (manager of Hendon) and Mr. Gustav Hamel, about to start for their looping flight.

marked local variations in the velocity of neighbouring particles of air, and his actual measurements show continuous variation in either the actual air speed of soaring birds or else in the actual velocity of the air in which they are moving, under either of which conditions they may obtain energy from the air in quite non-mysterious fashion. His very interesting observations on the apparent colour changes of the wings of birds suggest that the colours are due to diffraction and may be explicable by variation in the pitch of the actual feather structure under varying air pressures.

The book is written in terms easily understandable by the non-technical. There is a reference in the earlier pages to "levitation," a power invoked by an earlier writer on the same subject to account for soaring flight. It is defined as the ability to "so alter the magnetic polarity of the physical frame that in lieu of being attracted it is repelled by the earth." The earlier writer referred to instructs that this power may be achieved by "living an absolutely pure life and by religious concentration," whereupon Dr. Hankin reflects on the possible utility of irreligious sentiments when descent is necessary, which argument indicates a sense of humour sufficiently developed to guarantee that the reader shall not be bored.

The book is profusely illustrated with diagrams, and may be safely recommended as the most complete record of the actual facts of soaring flight yet existing; though as a guide to the study of aerodynamics its value lies in suggesting bases of argument in contradiction to the author's conclusions. Still, it is well worth the 12s. 6d. at which it is priced.

The book may be obtained from this office.—W. H. S.

A Painful Task.

Messrs. Percival Marshall and Co. have sent for review a copy of a book entitled "How to Understand Aeroplanes," by Mr. S. L. Walkden, which places the unfortunate reviewer in an awkward predicament, moving him, as it does to a mixture of emotions wherein laughter, tears, and some righteous indignation all have their part, and leaving him in serious doubt as to what proportions of these various ingredients he should incorporate in his notice.

Briefly, one may report that Mr. Walkden has made a discovery. To quote his "Preface, Résumé, and Introduction," "in the autumn of 1912, *something happened*" (the italics are Mr. Walkden's) which caused "the same old aeroplanes"—which previously were, according to Mr. Walkden, only capable of flying in the deadest of dead calms—this, despite the Circuit of Britain and so forth in 1911—"to fly—*really to fly*" (italics of similar origin). "No longer did they wait for calm days and flutter along precariously" (here follow gruesome details), "but as fully-fledged, powerful, man-controlled birds they flew with abandon and confidence, and the Conquest of the Air was . . . an accomplished fact. . . ."

Mr. Walkden's discovery apparently is that at or about the time aforementioned all the eminently stable box-kites and other existing aeroplanes, as he infers them to have been, were changed to what he illuminatingly denominates the "new style" of inherently unstable auto-nose-diving machines which he believes now to be in universal use, by a complete redistribution of their weights and rearrangement of their surfaces, all so cunningly carried out that no one detected the change.

In justice to Mr. Walkden it must be stated that he does not mention how this was done, but as neither the designers, the pilots nor the mechanics have any knowledge of this change, it requires no Sherlock Holmes to deduce the facts, though the name of the benevolent perpetrator is awaited with interest. To the inestimable benefits resulting from this deed the remainder of the work in question bears eloquent testimony, while the illustrations are beyond money and beyond price. We trust that the original drawings may appear at the Holland Park Rink.

To those who have sufficient knowledge of practical aerodynamics to appreciate it, the book may be recommended as one of the funniest things at its price (1s.) of recent years; but it is to be feared that it may be taken seriously by the young and ignorant, who are liable to believe a statement simply because someone has gone to the expense of putting it into print.—W. H. S.

The Week's Work.

Weather Report for Week Ending May 10th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Windy	Windy	Windy	Windy	Windy	Windy	Wet Windy
Calshot	Windy	Wet Windy	Gusty	Windy	Dull	Windy	Wet Windy
Eastchurch ..	Windy	Windy	Windy	Windy	Windy	Windy	Wet Windy
Hendon	Windy	Windy	Windy	Windy	Windy	Windy	Wet Windy
Montrose	Dull	Dull	Bright	Rain	Rain	Dull	—

Flying at Hendon.

In spite of a cold and gusty wind, and intermittent rain, some very interesting flying took place on Saturday. Shortly before 4 p.m. Mr. Strange came out on the Blériot, and carrying a passenger, made a high and lengthy flight. Soon afterwards, Mr. Birchenough took up a G.-W. biplane, and after a fight with the wind, descended in a steep spiral. Mr. Crawshaw went for a cross-country flight on his 70-h.p. Blériot, accompanied by Miss Trehawke-Davies, and Mr. Lillywhite made a short trip on the G.-W. biplane.

After a short interval M. Verrier went up alone on a front elevator Maurice Farman biplane, and after making a tour of the clouds, descended with his propeller stationary, floating about in the air for some 10 mins., finally coming in over the sheds, over which he hung motionless for a few seconds with the machine steeply banked, with the wind under one wing, and landing quite close to the "pier" in front of the Aircraft Co.'s sheds.

M. Marcel Desoutter, who looked very happy, made a short flight on Lord Edward Grosvenor's Blériot (50 Gnome), starting with a very steep get-off and making some fine banked turns. The flight was ended by a defect in the oil supply.

The Grahame-White Olympia Show two-seater propeller-driven biplane, (100-h.p. monosoupape Gnome) was brought



At Hendon on Saturday.—Above—the Grahame-White Show biplane (100-h.p. Gnome) making a test flight. Below—M. Desoutter about to start on a Blériot.

out late in the evening, and Mr. Louis Noël made flights on it, two straight and one curvilinear. It is early to judge of the behaviour of the machine in the air, for various adjustments and several alterations are evidently necessary, the more obvious of which are a much longer tail and a larger rudder and fin. The machine also appears to be nose-heavy.

Just before dark Mr. Carr took up Mr. W. Newell, a parachutist, and Messrs. Goodden and Lillywhite on the 5-seater to 2,000 feet, and dropped Mr. Newell overboard. The parachutist sat on one of the skids, nursing his apparatus, and Mr. Goodden sat immediately above him on the lower plane, from whence he assisted to clear the acrobat. The time taken to reach the ground was 2 minutes 17 seconds. The performance is to be repeated on Whit-Saturday, the 30th.

Sunday was a drizzling, rainy day, but the attendance was good, and the flying was unabated. Mr. L. A. Strange made several flights on the Blériot, and Messrs. R. T. Gates, R. Carr, and Lillywhite flew box-kites, with passengers.

The Sanchez-Besa biplane (80-h.p. Salmson) left Hendon on Tuesday of last week piloted by M. Delaporte, with M. Sanchez-Besa as passenger, and returned to Paris via Boulogne, thus completing a cross-country journey of 650 miles without incident.

Some very good flying was done at Hendon, and, despite some peculiarities in design, it is evident that the machine is to be considered very seriously as a possible variant on existing types of propeller biplanes.

Flying at Brooklands.

During the early part of the week there was no flying, as the wind was blowing at 30 m.p.h., and occasionally reaching as much as 45. On Wednesday, Mr. Barnwell was flying the Vickers gun-carrying biplane with passengers; in the afternoon Mr. Pixton was out on the dual control 80-h.p. Sopwith with Mr. Mahl in the front seat, the latter taking control in the air. Mr. Pixton afterwards took a Sopwith "tabloid" to Farnborough, but in landing in a cross wind buckled one of the wheels and turned the machine over, with little damage to the machine and none to the pilot. Lieut. Collet, R.M.L.I., was out on the D.F.W. He flew across the track at the Byfleet end at about 40 ft. and turned just over the trees.

It was again too windy for flying on Thursday and Friday. On Saturday Mr. Barnwell was flying the Vickers gun-carrying machine in a 30 m.p.h. wind. Mr. Pixton was also out for a few minutes on a "tabloid" Sopwith. On Sunday it was raining nearly all day and the only machine out was the Sopwith "tabloid," flown by Mr. Pixton for about 5 minutes.

Flying at Shoreham.

Despite wind, the Pashley and Shoreham flying schools have managed to put in some good work. On Monday last, as Sub-Lieut. Rainey, R.N.R., was starting on a Sopwith at 400 ft. to fly to Eastchurch, his oil pipe broke and he had to descend outside the aerodrome. In getting off again his skid fouled some rough ground and the machine overturned, resulting in a pretty wholesale smash; the pilot escaped with a shaking.

Early last Saturday morning Mr. J. E. B. Thornely started from Eastbourne for Shoreham on his looping Henri Farman, but owing to wind took $1\frac{1}{2}$ hours to reach Brighton, where, his engine missing, he descended at Roedean. The machine ran backwards down a slope and damaged a tail skid. Later in the day he flew to Shoreham. On Sunday rain and wind prevented flying, but Mr. Thornely will remain this week to give exhibitions on Saturday and Sunday, May 16th and 17th.

Everything points to a successful season at Shoreham. All sheds are full, and three more are to be erected for the Cedric Lee Company. Three more tennis courts are being added. A little money is all that Shoreham needs to be a most successful aerodrome, and if a wealthy enthusiast would only come along and provide the money to improve the approaches to the aerodrome, which are vilely bad after a spell of bad weather, progress would be rapid.—E. L. D.

Mr. Hamel at Southampton.

On Saturday, Mr. Gustav Hamel gave an exhibition of looping, upside down flying and tail slides at Swathling Golf Course, about three miles from Southampton. Mr. Hamel made

two flights, both much appreciated by the spectators, and an impromptu performance nearly ending in a smash due to a bad gust while coming in too low over the trees was loudly applauded. He remained upside down on one occasion for 43 seconds.

Mr. B. C. Hucks at Leicester.

On Wednesday last, Mr. Hucks flew at Ayleston, near Leicester. First on his two-seater, Mr. Hucks took up a local undertaker. A trip was also made for the height-guessing competition. On reaching the centre of the ground, Mr. Hucks had arranged to fly a small circle, at which point the height was to be judged. Unfortunately, when he was about to make the turn he ran into a dark cloud and disappeared. It was agreed to accept estimates of the highest point reached and the winner of the £5 offered by a local Music Hall got within two feet of the actual figure. Mr. Hucks on his Blériot looper then did six loops and two upside-down flights.

On Thursday, Mr. Hucks again flew at Leicester, carrying several passengers on the two-seater, and on the looper made six loops.

On the following Saturday a huge crowd witnessed a wonderful display.

Readers may remember that Mr. Hucks recently decided to charge 6d. for his autograph, the proceeds to go to the Aviation Benevolent Fund. A special stamp has been prepared, which has, by the way, been printed by the Dangerfield Printing Company, and presented by them to the Fund. These stamps are affixed as a receipt wherever Mr. Hucks signs his autograph.

School Reports.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instrs.: Messrs. Lillywhite and Howarth. Pupils with instr on machine: Mr. Y. Y. Lui (new pupil), Mr. Galston-Shepherd (new pupil), Mr. Winter (new pupil), Mr. Howett (new pupil), Mr. Clarke. Machines in use: School biplanes.

Brooklands.—AT VICKERS SCHOOL: No tuition flights owing to weather. 8's and circles alone: Lt Underhill (1), Mr. Liddell (1). Certificates taken during week: Lt Underhill and Mr. Hurst both on biplane. The only flying for past week was on Sunday morning, 10th inst.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/- 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

THE CAUDRON SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best-equipped School, enquire what the Caudron pupils are doing.

THE BRITISH CAUDRON CO., LTD.,
London Aerodrome, Hendon.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition on biplanes of up-to-date construction.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

HALL FLYING SCHOOL.

HALL FLYING SCHOOL.—TUITION—Flying and Construction—given on

A vro Biplanes.

B leriot Monoplanes.

C audron Biplanes.

D eperduzin Monoplanes.

N.B.—Only tractor machines in use.

PASSENGER FLIGHTS.

Flying exhibitions.—Write at once for full particulars gratis to HALL AVIATION Co., London Aerodrome, N.W.

PROPELLERS.

BLACKBURN PROPELLERS. — Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—THE BLACKBURN AEROPLANE COMPANY, Leeds.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, THE AEROPLANE, 166 Piccadilly, W.

EMPLOYMENT.

JOINER, (35), seeks Situation in Aeroplane Works as woodworker or erector; keen on flying.—Box No. 565, THE AEROPLANE, 166, Piccadilly, W.

JOINER (20), willing to devote whole of his time to flying man or constructor as general assistant; qualifications, etc.—Apply Box 566, THE AEROPLANE, 166, Piccadilly, W.

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—THE WILLOWS AIRCRAFT Co., LTD., Hendon Aerodrome.

ARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Threc-ply, Laminated blocks, guaranteed perfect timber supplied for propellers.—WM. MALLINSON & SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.

VOLK SEAPLANE STATION BRIGHTON

FREE ACCOMMODATION FOR SEAPLANES

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1'6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MONOPLANE, size 31 in. by 24 in., guaranteed flier, 5s.; set of parts, with drawings for constructing the above model, 2s. 6d. We stock everything for models.—MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.

T. W. K. CLARKE & CO., Hampton Wick, Middlesex, for model aeroplanes and accessories. Rotary compressed air motors fitted with 16 in. propeller, £1 1s. Finest quality strip rubber, ¼ in. and 3/16 in. wide, 1s. 4d. and 10d. doz. yds. Clarke carved propellers, 2d. per inch. Send for our lists containing over 120 items. Trade supplied.

BOOKS TO READ.

Flying: Some Personal Experiences.

By GUSTAV HAMEL and C. C. TURNER, 12/6.

Animal Flight: A Record of Observations. By DR. E. H. HANKIN. 12/6.

The Mechanics of the Aeroplane.

By DUCHESNE. 7/6.

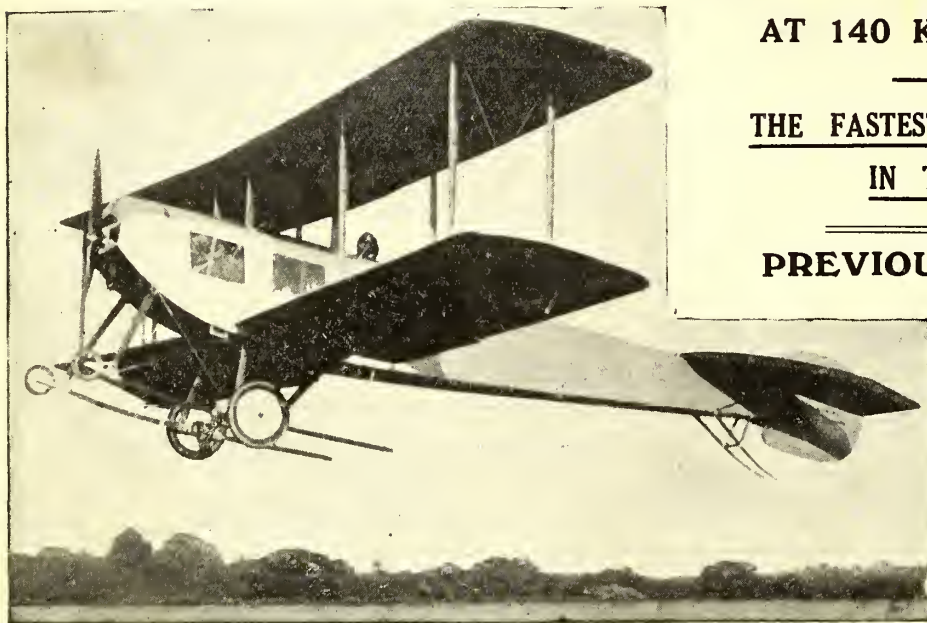
KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE LATEST SOPWITH SUCCESS:—

WINNING OF THE SCHNEIDER CUP

AT 140 KMS. PER HOUR.

THE FASTEST HYDRO-AEROPLANE
IN THE WORLD.



PREVIOUS RECORDS on
the preceding type
of **SOPWITH**
BIPLANE (80 h.p.
Gnome).

British Height Record
(Pilot alone) 11,450 ft.

British Height Record
(Pilot and 1 Passenger)
12,900 ft.

British Height Record
(Pilot and 2 Passen-
gers) 10,600 ft.

WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.

ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone:
1777 KINGSTON.

Offices and Works: KINGSTON-ON-THAMES.

Telegrams:
"SOPWITH, KINGSTON."

THE AERIAL DERBY

For the "Daily Mail" Gold Cup and "Shell" £400 Prize.

See the Start (4.15 p.m.) and Finish (about 5.0 p.m.)

AT HENDON, SATURDAY, MAY 23, 1914

(Weather permitting).

ADMISSION 1s., 2s. 6d., 5s., 10s. MOTORS 5s., 10s.

Write to Dept. A.
London Aerodrome
Offices, 166 Piccadilly,
London, W., for a
free copy of the little
booklet entitled "Won-
derful Flying at Hen-
don," which contains
numerous illustrations,
a complete list of fix-
tures for 1914, and
particulars of passen-
ger flights, routes to
Hendon, Season
Tickets, etc., etc.

"LOOPING" and AIR RACING
Every Thursday and Saturday, from 3.0 p.m.

To-day, Thurs. May 14, Quick Starting Competn.

Next Sat., May 16, Second Summer Meeting.
TWELVE MILE SPEED CONTEST.

Special Displays and Passenger Flights
every Sunday afternoon.

Passenger Flights daily from £2 2s. 0d.
Admis. 6d., 1s., 2/6 Children Half-price. Motors 2/6 (Inc. chauffeur)

London Aerodrome, Hendon, N.W.

Proprietors: The Grahame-White Aviation Coy., Ltd.
HENDON: Phone—Kingsbury 120 (4 lines). Wires—"Volplane. Hyde, London."
LONDON: 166 Piccadilly, W. Phone—Mayfair 5955. Wires—"Claudigram, Pic. Y.
London."

To meet the special needs
of those who wish to learn
more about the fascin-
ating subject of Aviation,
a series of brilliant
articles entitled "The
Triumph of Aviation" by
Mr. John H. Ledeboer,
A.F.Ae.S., will appear
in the pages of the Lon-
don Aerodrome Official
Programme every week
until the end of the year.
The series, which will be
profusely illustrated, will
form a non-technical his-
tory of aviation from the
very earliest days down
to the present time. Copies
will be sent, post free,
every week, at the follow-
ing reduced charges:—
13 weeks, 2/-; 26 weeks,
3/9; 39 weeks, 5/6; 52
weeks, 7/- Apply Lon-
don Aerodrome Offices,
166, Piccadilly, London.

PHOTOGRAPHS OF AERIAL DERBY CANDIDATES.

THE AEROPLANE

12
WEEKLY

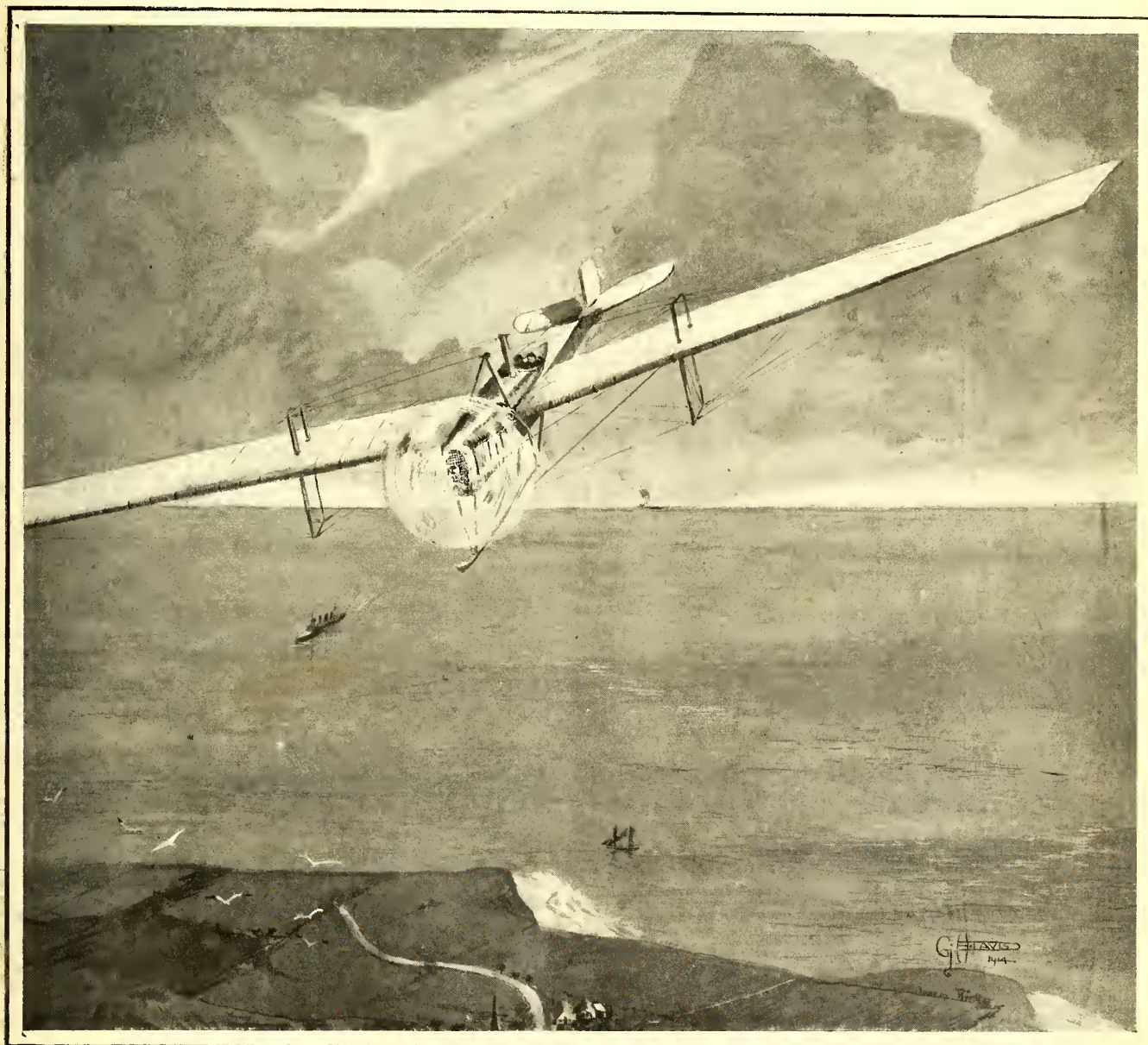
Edited by C. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.]
AS A NEWSPAPER.

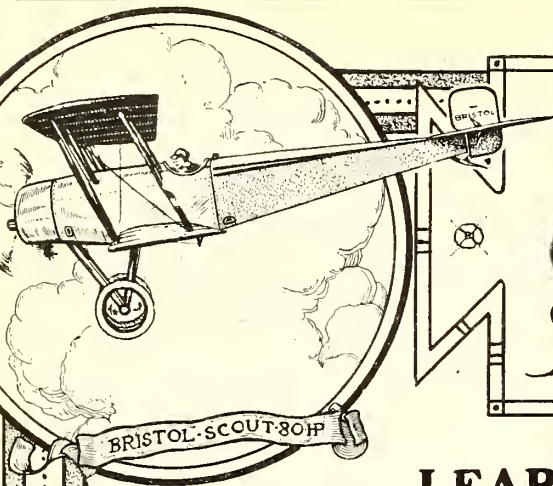
THURSDAY, MAY 21, 1914.

No. 21

THE TRANS-ATLANTIC FLIER.



In the picture above Mr. G. H. Davis, whose pictures of aircraft in the "Sphere" have done much to impress on the people of this country the importance of aerial navigation, shows the Trans-Atlantic Martinsyde much as she will appear when finished. She is here depicted, as we hope to see her, planing down to the Coast of Ireland at the end of her great journey.



The Bristol Aeroplanes

LEARN TO FLY
AT THE GREATLY ENLARGED

“BRISTOL” SCHOOL AT BROOKLANDS

WHICH POSSESSES

The Finest Possible Equipment and adopts
the most Up-to-date Methods.

UNDER THE TUITION OF SOME OF THE LEADING
AVIATORS OF THE DAY,

RAPID AND THOROUGH TUITION IS ENSURED

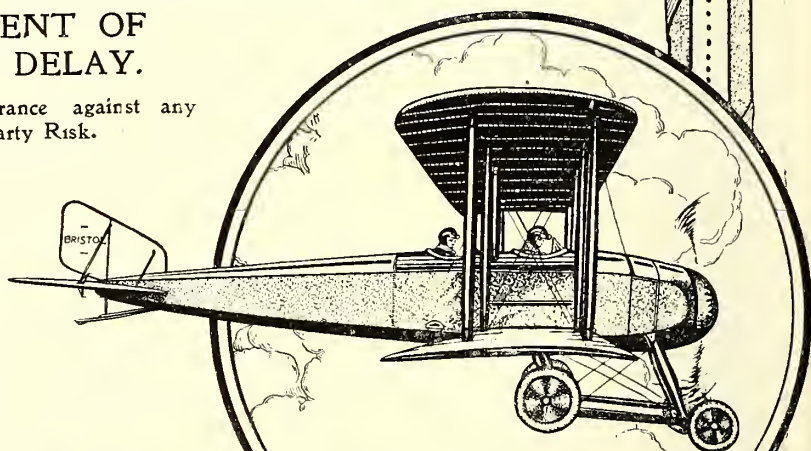
FULL COMPLEMENT OF
MACHINES—NO DELAY.

SPECIAL FEES covering insurance against any
Breakages and Third Party Risk.

Write for full information to—

**The British & Colonial
Aeroplane Co., Ltd.,**

**Filton House,
BRISTOL.**



ERNEST B. H. LANDER
1914

BRISTOL BIPLANE 80 HP

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The All-British Trans-Atlantic Attempt.

When Lord Northcliffe, a true sportsman as well as a genius in business, made his splendid offer in the "Daily Mail" of a £10,000 prize for the first aviator to fly across the Atlantic, many people regarded the flight as impossible under any circumstances. Even to-day there are not a few who believe that no aeroplane could carry a sufficient supply of fuel to make a non-stop flight, among them being several really practical aeroplane designers. Over a year before the prize was offered this paper published an article by Mr. P. K. Turner showing that by very careful graduation in the use of petrol it was possible to cross without descending for supplies, even using the engines then available. More recently, when the Curtiss scheme for a flying-boat, to be piloted by Lieut. John Porte, R.N., was made public, interest in the subject among those whom the French call *les fervents d'aviation*, revived, and Mr. McGeagh Hurst kindly gave this paper figures for a trans-Atlantic machine, based on the known performances of the existing Martin-Handasyde monoplane, as equipped with any one of several modern engines. In this article I suggested that what was wanted was some British capitalist who would put up £5,000 or so to build such a machine and try it, for obviously there would be no lack of pilots.

This article brought me a letter from a wealthy young Anglo-South American sportsman, who was willing to put up the money if he could see that there was a sporting chance of a machine getting through. He approached several firms on the subject, and we went deeply into it together. Some firms who could have built machines fit for the job were obviously too busy to do so this year. Others believed firmly that it would be necessary to alight on the way to pick up supplies from depot ships. After further study of the navigation problems this gentleman decided that the risk of missing the depot-ships, and the doubt about the possibility of alighting on and getting off the Atlantic rollers made a flight with stops far too hazardous, and that a non-stop flight, though distinctly possible, was something of a long-odds gamble. As he put it himself, in a fine sporting spirit, if he himself could have piloted the machine or gone as navigator he would not have hesitated for a moment, he would have had a shot at the non-stop flight, but he could not stand the idea of merely putting up the money and sitting safely ashore or on a yacht to await the result while others took the risks. Consequently, after further investigations as to the chance of a machine being picked up if it came down and could not get off again, he let the scheme drop, at any rate, for this year.

Almost simultaneously two other schemes were moving. One pertained to an American business man, whose representative in this country particularly desired that Mr. Hamel should attempt the journey. I introduced the two and left them to fight it out. Mr. Hamel, keen on distinguishing himself, was willing to take the job on, but, here again, after approaching various constructors, the capitalist thought the risk was too great, and declined to take the responsibilities which failure would involve.

The third scheme I know but little about, having merely been consulted as to possibilities and types of machines, but I

gather that the man with the money hesitated and lost his chance.

Then, a few weeks ago, the real working proposition came along. Mr. Hamel, through a mutual friend, himself a keen student of aviation, met Mr. Mackay Edgar, the Scottish-Canadian capitalist who owns "Maple Leaf," the Austin-engined Saunders boat with which Mr. Sopwith won the International motor boat race in 1912 in America, and kept it over here last year. Mr. Edgar is a sportsman of a type unfortunately very rare in this country. Instead of spending his money, as so many self-made men do, on old-fashioned games such as horse racing or yachting, which lead nowhere, and are merely "toney," he combines his sport with a desire to encourage new developments. Hence first motor-boating and now flying. The trans-Atlantic project interested him. In a very short time Mr. Edgar, being a business man, decided to do the thing properly, and it is being done properly.

The ordering of the machine was left to Mr. Hamel, and after some investigation he decided that the machine should be built by Messrs. Martin and Handasyde at Brooklands. The reasons, briefly, are that they are a firm with a very long experience in this country of high-powered, high-speed machines, and their workmanship is unimpeachable. Their present machine does eighty miles an hour with 120-h.p., and is much heavier than it need be, so they have a vast reserve of lift. It is true that certain other firms have, of late, been highly successful with engines of between 100 h.p. and 200 h.p., but none were of a type which appeal to Mr. Hamel.

Messrs. Martin and Handasyde at once got to work and the machine is already taking definite shape. When I first referred to it some weeks ago I was not at liberty to disclose its true purpose, and could merely say that it was intended to go abroad and to make attempts on long-distance records, which is strictly true. Now, all the preparations for the attempt on the Atlantic flight are so far advanced that there is little fear of our being caught up by competitors in other countries.

Everything about the machine is being built in duplicate, and a big supply of small parts, liable to damage in packing or erecting, is being got together. Two pairs of wings are being made, and two fuselages.

Two engines of nominally 215 h.p. each—Mr. Handasyde is confident he can get 250 h.p. out of either—have been ordered from the Sunbeam Motor Co. The first Sunbeam aero-engine of 100 h.p., which has been on test at Brooklands for some months in the hands of Mr. Jack Alcock, has done 230 hours' flying, besides running tests and tuning up on the ground, and is only now having its first overhaul. Mr. Louis Coatalen's racing car engines have been wonderfully successful, and his knowledge of high speed motors is unsurpassed, so one may feel confidence in those he has made for this job. The first of them goes onto the test bench this week and the second the following week. Both will be tuned up for the trans-Atlantic flight, and whichever is not put into the machine will go to the starting point as a stand-by, in case the other is damaged in any way—one cannot guarantee that workmen will not drop spanners on water-jackets, or will not put their heads into pro-

pellers while a machine is on the ground with the engine running, which may well bend a crank-shaft.

The start is to be made from Newfoundland. Mr. W. E. de B. Whittaker, whose writings are well known to readers of this paper, left Liverpool on Saturday last to find and prepare a suitable landing place. At the beginning of this year Mr. Whittaker left the staff of this paper to act as Mr. Hamel's manager, and has arranged numerous remunerative exhibitions for him. A born organiser, a former officer of infantry, and possessing a gift for handling men, Mr. Whittaker can be depended upon, bar accidents, to make good at his end of the scheme. He has been connected with aviation for over five years, and has himself done much flying, both as pilot and passenger, so that he knows exactly what is required. The great difficulty before him is to find a piece of land near the sea of sufficient extent to allow a big, heavily loaded machine to get off the ground, for Newfoundland is of what the French call an "accidenté contour," the soil is rocky, and mountains abound. However, Mr. Edgar's influence on the other side of the Atlantic is sufficient to ensure everything possible being done to find the right place and fit it for its purpose.

The machine itself, which is described hereafter in detail by Mr. Sayers, is a land-going monoplane without floats, and the chassis is designed so that when once over the sea it can be dropped off, thus lightening the machine and reducing its head-resistance very materially. In the event of the machine being compelled to come down in the sea the huge wings will make an excellent raft, which, it is believed by those most concerned, will stand Atlantic rollers better than any arrangements of floats could do. Apart from this the huge petrol tank, of 330 gallons capacity, would alone float the machine, and the central portion of the body is built as a water-tight compartment. Rockets and a light telescopic signal mast will be carried, in case of emergency. On reaching land the machine will alight on its big central skid, and the lower king-posts.

The distance from Newfoundland, measured from the Straits of Belle Isle to the Coast of Ireland, say to the Marconi station at Clifden in Galway, is a shade over 1,600 miles, so that assuming the machine has a speed of only 80 miles an hour the journey should be done in 20 hours. Careful study of Atlantic conditions shows that it should be possible to ensure a westerly or north-westerly wind, which, if it added only 20 miles an hour to the speed, would reduce the time to 16 hours. Also, it is not yet possible to calculate what extra efficiency a big machine may give over a small one of similar type, but it seems probable that the estimated speed may be considerably exceeded.

Mr. Hamel will take with him an experienced navigator, an officer of one of the great steamship lines, who has crossed the Atlantic about seventy times, and knows its weather like a book. Tests already made show that it is possible to navigate with reasonable accuracy in an aeroplane, and as the fliers will be well up over any fog on the Newfoundland Banks they will have an advantage over a ship. Once clear of the "Banks" they will be well into the steamship lane, and it is found that there is seldom a distance of more than 60 miles between ships on these regular trade routes. Consequently

they should, in clear weather, never be out of sight of a ship for more than twenty minutes or so, for they should be able to see a vessel twenty or thirty miles ahead from 1,000 feet.

Naturally every ship sighting the aeroplane will give her position by "wireless" to the next, so that the progress of the flight may be followed hour by hour, and, if compelled to descend, the crew of the machine should be picked up within a few hours, for one assumes that as soon as the start is signalled every vessel within reach will endeavour to keep along the course which the aeroplane is to follow.

Taking it all round, the risk is nothing like so great as was that taken by M. Blériot when he flew the Channel in 1909. Aeroplanes and engines are more reliable, and there will be no really unknown quantities in this case except the endurance of the pilot and navigator. The great danger will be that the dreadful monotony of hearing that engine drumming away for more than twelve hours may send them both to sleep. It is not like driving a car all day, where changes of gradient, varied road conditions, and other traffic, keep one constantly on the alert. Personally, I should like to see Mr. Hamel drive a comfortably sprung car at about 30 miles an hour round Brooklands for 12 hours just by way of an endurance test. Even that would be less monotonous than flying over the sea all day long, without anything to dodge, and only a sight of an occasional ship for scenery. Also, Mr. Hamel should put himself in the hands of an experienced athletic trainer for a couple of months before the start, and eschew late hours and all entertainments by his admirers. It would, undoubtedly, be wiser if the navigator were also a pilot, so that the controlling could be done in spells. I can quite understand that no one wants to divide the honour of flying the Atlantic with another pilot, but it would be well if the navigator knew enough to take charge in the air for an hour or so at a time.

As usual in matters requiring real enterprise, it is amusing to try and see where the Englishman comes in. The whole thing is being made possible by a sportsman whose name distinctly suggests Scottish origin, and he is financing it with Canadian money. The pilot is English by birth and nationality, but absolutely Scandinavian by descent—a happy omen, in that the Scandinavians discovered America centuries before Columbus, though they had the decency to keep it dark. If a Scandinavian was the first to cross the Atlantic by water, who shall grudge that great race the credit of supplying the first to cross by air? The designers of the machine are the one a Scot, and the other possibly English, though I doubt it. The engine designer is French. It reminds one of grand opera, where the English are only used in the chorus.

Meantime, excellent progress is being made with everything. The machine should be out for trial at the middle of June or beginning of July, and with any luck the great attempt should be made at the end of July or early in August. The machine will be taken by special steamer direct to the starting place, and after that there will be little to do except pray for fine weather and the good fortune the enterprise deserves. Needless to say, all concerned will carry with them the good wishes of everyone in this country who realises how much more we than any other nation require to make progress in all that pertains to flying.—C. G. G.

The Martinsyde Trans-Atlantic Monoplane.

As will be seen from the accompanying drawings, which may be taken as being correct and to scale in all essentials, though some of the details are not yet wholly decided upon, the Trans-Atlantic machine is on the usual Martinsyde lines, though in actual structural design the machine is materially different from anything that has gone before.

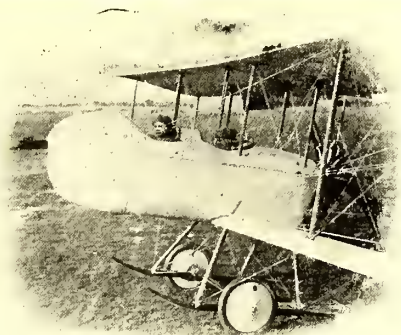
The fuselage is of similar form to that hitherto employed in the smaller Martinsydes and up to the trailing edge of the planes of somewhat similar construction, with hickory longerons and three-ply covering. In the front thereof is to be mounted a 215 (nominal) h.p. 12-cylinder Sunbeam motor driving through a reduction gear a 12 ft. diameter four-bladed propeller. Behind the motor a water-tight bulkhead is built across the fuselage, and a second bulkhead of

similar construction is fitted some 14 ft. farther back. Behind this bulkhead the fuselage is of the strutted and wire-braced type, normal to nearly all types of machines other than the Martinsyde, but with enormously strong vertical and thwartwise members.

This 14 ft. section of fuselage is thus a watertight compartment and has a flotation capacity of nearly twice the full load weight of the machine.

Towards the forward end of this compartment the front spars of the wings cross the top longerons of the fuselage, and at about the middle the rear spars come into the fuselage beneath the longerons, the spar ends butting against each other on the centre line.

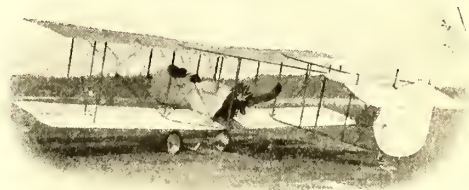
From the spars where they enter the fuselage spring a pair



LEARN TO FLY
at the
VICKERS FLYING SCHOOL
BROOKLANDS.

A thoroughly graded course of tuition is given upon machines of sound construction, and of up-to-date design, by experienced and capable instructors.

VICKERS LIMITED,
Aviation Department, Vickers House,
Broadway, Westminster, S.W.



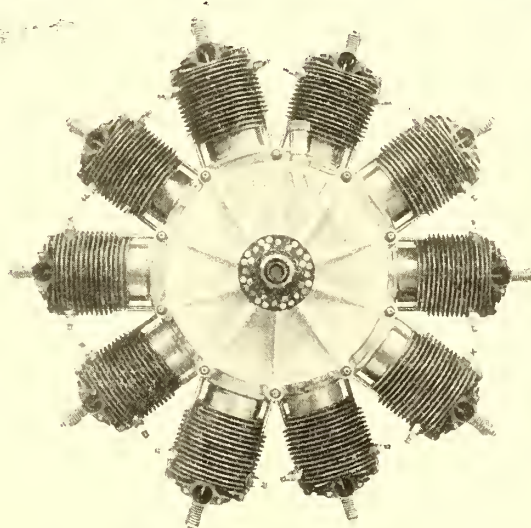
BRITISH ANZANI

AERO

ENGINES

The 125 h.p.

10-Cylinder



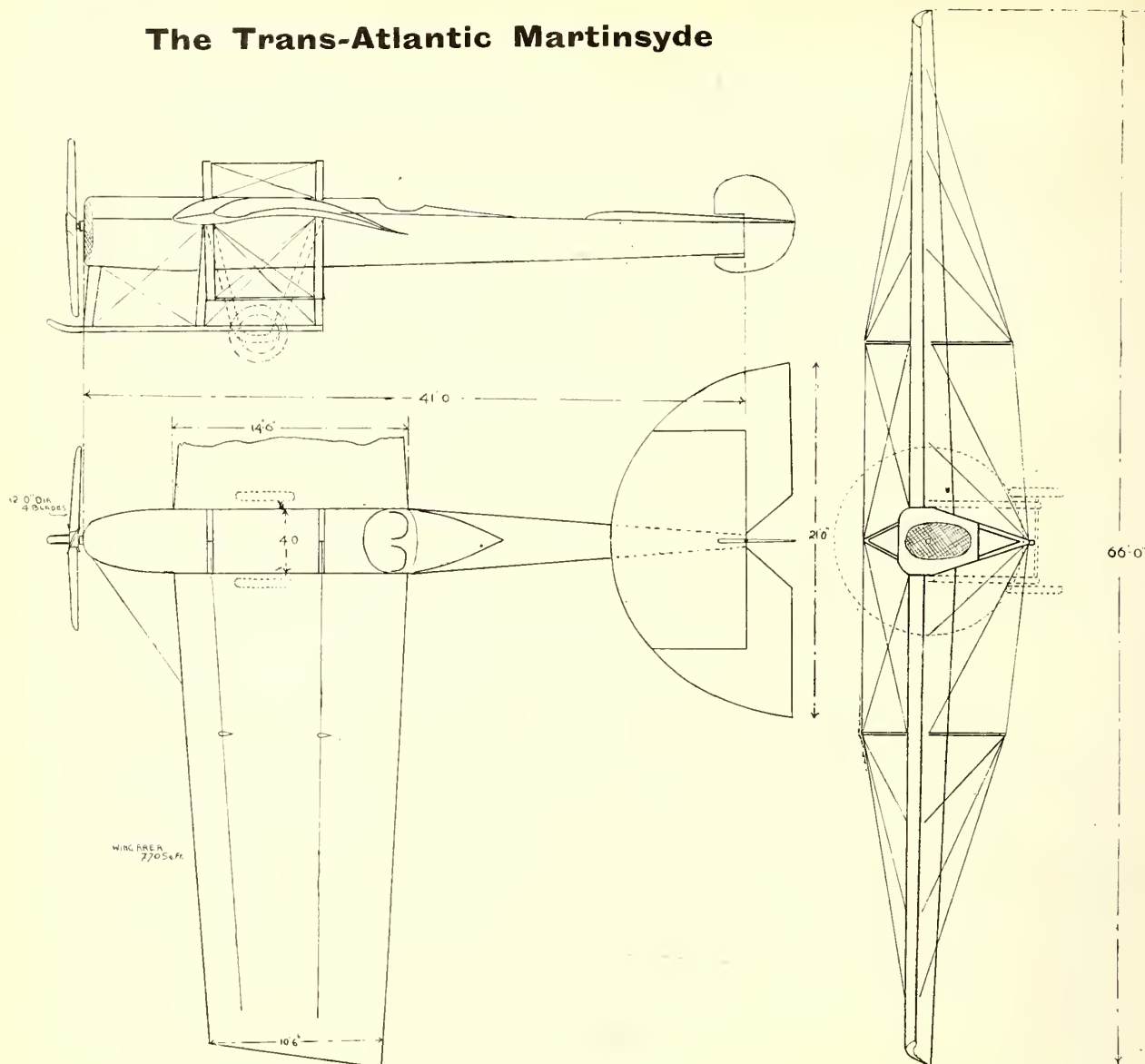
Wires :
"Anzani, Piccy., London."

'Phone :
280 Gerrard

THE BRITISH ANZANI ENGINE CO., LTD.
30, REGENT STREET, PICCADILLY CIRCUS, LONDON, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Trans-Atlantic Martinsyde



of inverted struts which terminate at the centre skid and carry the main bracing wires of the wings, and from the spar butts, through the agency of a pair of longerons attached thereto, is slung the petrol tank, a trifle some 9 ft. long by close on 3 ft. diameter, weighing when full about 1 ton. By this construction the wings and the lower cabanes with their attendant bracing wires become a complete unit carrying directly the main weight of the fully loaded machine, the pilot and passenger and the motor being minor details as far as weight is concerned, compared with the fuel, and it becomes possible to make the fuselage itself quite light—actually it is lighter than those of the existing monoplanes of the same mark.

Pilot and passenger's seat are at the rear end of the watertight compartment, level with the trailing edge of the wings.

At the rear end of the fuselage is the tail, of approximate semi-circular plan form and 21 ft. span, fitted with large split and balanced elevator flaps and a large balanced rudder.

The wings are of 66 ft. overall span, the trailing edge some 3 ft. longer than the leading edge, of 14 ft. 6 in. chord at the roots, tapering to 10 ft. 6 in. at the tip, with a total surface of about 770 sq. ft. The spars are of silver spruce of about 1 ft. depth at the roots, tapering both in their depth and in their distance apart toward the wing tip.

Former ribs, of similar construction to those usually employed in this work, at frequent intervals and cross compression struts complete the wing structure proper. The plane section is that which Messrs. Martin and Handasyde have already used with excellent results, but with a slice cut off the top of the curve, leaving the wing between spars absolutely flat.

The wing bracing system at first sight appears to be the normal king-post method, but is actually rather different, as the bracing wire from the ends of the king-post run to the cabanes both on the top and the bottom. This arrangement constitutes a box girder system analogous to a biplane box, the lower wire of the system taking the tension which is normally taken by the lower spars of a biplane.

Bracing wires are taken to five points on each spar, giving spans between points of support of about 6 ft. only, whereby the bending moments on the spar and the consequent stresses therein are reduced to absurdly low values; in fact the constructors are in great tribulation because certain other considerations dictate the minimum dimensions of the spars, and these stresses are so small that were they only to be considered much weight might have been saved.

The permanent undercarriage consists of a central skid attached to the bases of the two lower cabanes already mentioned and to a further similar pair of struts beneath

THE AIRCRAFT COMPANY LIMITED.

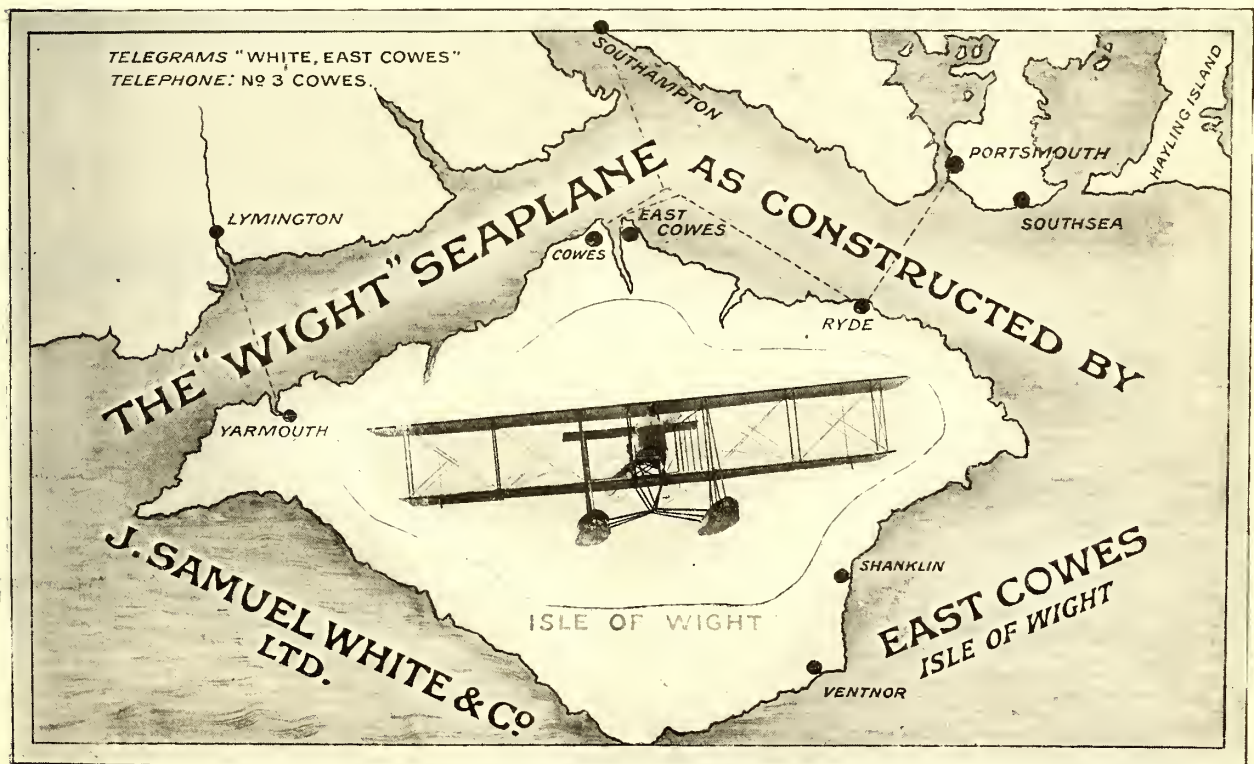
Hold the sole rights direct from the
Farman Brothers for the building of

HENRY & MAURICE FARMAN Aeroplanes and Hydro-Aeroplanes

In GREAT BRITAIN and the OVERSEA DOMINIONS

Works and Flying Grounds:
HENDON.

Offices: 47, Victoria Street,
WESTMINSTER, S.W.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

the nose of the fuselage. A pair of wheels on a cross-axle, supported by two U's carried from the wing spars close to the body will be fitted for trials and for starting on the actual Trans-Atlantic journey, but will be so attached that the whole rolling gear may be released and dropped by operating a lever from the pilot's seat after the start. The central skid and skids attached to the lower king-posts are relied on for landing, as the machine will be quite light when the flight is finished and should be able to land very slowly.

From over the engine to the rear of the seating accommodation a streamline cowl is fitted, and all external struts, king-posts and the like are streamlined with Messrs. Martin

and Handasyde's usual care. The machine empty will weigh 2,400 lbs., or slightly less; fully loaded for the great attempt, about twice that figure.

Taking existing machines of normal dimensions as a basis, this machine at 5,000 lbs. with 200 h.p. available and a normal propeller efficiency should be able to climb about 200 ft. per minute, so that there does not appear to be any reason to expect danger from the machine being sluggish at the start, and should the motor perform as it is expected to there is good ground for supposing that her speed in still air will appreciably exceed the 80-85 miles per hour, which is required to carry through the flight to schedule.—W. H. S.

The Aero-Engine Competition.

A visit to Farnborough on Saturday last showed that several new engines now occupy the cubicles there. In the first there is still an Argyll. This, one gathers, though not from the officials, of course, is the first Argyll, the one which broke its crank shaft, and in it has been fitted the crank shaft of the second which was on trial last week. It is said that the crank-shaft of the second engine stood up all right, but that there was trouble in the gears driving the valves.

The next cubicle contains a Centrum of 150 h.p. This engine consists simply of an enormous circular case, and one gathers that there are inside this case six revolving cylinders, fixed radially by their heads to the propeller shaft inside. Instead of a connecting rod each piston has a kind of gudgeon pin projecting outside the cylinder with a roller at each end, these rollers engaging in a kind of elliptical railway in each side of the cylinder case, the pressure of the explosion against this causing the cylinders to rotate. At the back of the engine there is a species of radiator on which the water tubes are arranged in rows like blades on a ventilator fan, and apparently the engine is cooled by this. There is also between the radiator and the case a large centrifugal pump, the function of which is not apparent without explanation by the makers.

Next to this engine there is a 6-cylinder, 100-h.p. Green of the type familiar to most people. This has been fitted with a large fly-wheel, and if anything in the competition is going to stand up to the official cardan joint, it looks as if the Green would. If it does so it can obviously be lightened about 50 per cent. for mere aeroplane use.

Next door is a 100-h.p. Anzani, built by the Coventry Ordnance Works, which strikes one as being an excellent piece of work, and one hopes to hear that it has managed to get through its tests without damage although running on the

official coupling. Next again is the 90-h.p. Beardmore-Austro-Daimler, which, so far as one can tell from external workmanship, upholds in every way the high reputation gained by the Austrian-built engines. There is certainly something very taking in the outward appearance of this engine, and though at first the external oil pipes strike one as giving it a complicated appearance they have advantages of their own. This engine also is being run without a fly-wheel.

In the last cubicle is a 90-h.p. Wolseley, water-cooled, which resembles in its general lay-out the engine which was on test at the beginning of the competition. Both the two last-named engines were at the time of my visit coupled to the water tanks instead of to radiators.

One gathers that it has been intimated to the competitors that they are at liberty to substitute a coupling of their own for the official coupling if they so desire. This permission is, of course, an unofficial confirmation of the statement made last week as to the unsatisfactory nature of the official coupling. These defects being now admitted, it is a logical necessity that all engines which were damaged during the first week's test by the defective coupling should be permitted to resume their tests with their own couplings when rebuilt. Also, it would appear only reasonable that the makers should be reimbursed for the cost of repair, and that these expenses should be charged against the Royal Aircraft Factory by the War Office.

No official test running has been done during the past week, so that there is nothing to report in this direction. A somewhat interesting light is shone on the arrangements by the fact that in the case of one engine, which according to the official instruments steadily refused to give anything like the power she had been giving on her own tests, the makers sent the measuring instrument to be tested independently and it was found to be about 20 per cent. low.—C. G. G.



The Benediction of a Bristol Biplane presented by the inhabitants of Silistra to the Roumanian Army. General Coanda, Roumania's War Minister, and father of the Bristol designer, is seen on the left.

THE GNOME ENGINE COMPANY.

(SOCIÉTÉ DES MOTEURS GNÔME.)

To whom all applications for Gnome
engines and spare parts should be made
for

Great Britain and the Oversea Dominions.

THE GNÔME ENGINE COMPANY,
47, VICTORIA STREET, WESTMINSTER, S.W.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

Mr. W. Rowland Ding took his pilot's certificate after $3\frac{1}{2}$ hours in the air, 14 days' actual training. During his test flights he reached an altitude of 1,150 feet, gliding down from this height with his engine cut off.

The Beatty method of training is the quickest and most thorough.

Tuition on Handley Page Monoplane & Wright Biplanes

£75.

Special terms to Naval and Military Officers.
(Signed) Geo. W. Beatty.

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Duties of an Inspection Department.

BY W. E. de B. WHITTAKER.—(Continued)

The Inspection Department has the opportunity of becoming, if properly encouraged, one of the most important, if not the most important, office in the Royal Flying Corps. If everything goes as it should, then there is no reason why the A.I.D. should not control the selection, acquisition and maintenance of all matériel in use in the R.A.F. To do this with success it would be necessary for the officers of the Department to have the whole-hearted sympathy and aid of all the flying personnel. The closer the contact on proper lines between these two branches of the same service the more the possible efficiency attained. To go over the various points in turn the first of importance is the selection of aeroplanes.

At present it is necessary to buy aircraft of all kinds without any too definite settlement on standard types, but the next year or two will alter all that. It will then be necessary before purchasing aeroplanes, or asking for the submission of aeroplanes for test, to lay down the various types most suitable for use in the different duties appertaining to the R.F.C. To-day all aircraft are much the same. There is no great variation in speed, rate of climb and weight lifting. The normal speeds of present-day aeroplanes are usually between fifty and ninety miles an hour with an all-round landing speed of between thirty and forty miles an hour. And similarly the other attributes are as little diverse. But as time drifts by the aeroplanes constructed for various uses will be more and more widely divergent in type. One cannot even forecast with any definiteness what these types will be like or in what manner they will be allotted for different duties. But, broadly speaking, one knows that the aeroplane brought into being for use in reconnaissance will differ greatly from that intended as a gun-carrying, fighting machine. The coast defence aeroplane will have little more in common with that attached to fleets on the high seas other than the common ability to fly.

So far as land machines are concerned, it will be, or ought to be, the duty of the Inspection Department to create the necessary types from the information gleaned from the experience of such officers as report to it. In similar manner, to the specification recently issued by the Department, but in more detail and with less latitude, a new list might be printed. Then, as has been insisted upon time after time, makers would know what was required and could concentrate on a type which

had some personal appeal to them or for which they had some special technical aptitude. It is for the A.I.D. to insist on the standard of strength required and to approve or disapprove methods of manufacture. When this stage is reached in the history of aviation the A.I.D. should be one of the supreme bodies in the matter of aeronautical science. However standardised a machine, or series of machines, may become, it will not in those days militate seriously against the private inventor who has sufficient genius to produce anything of a strikingly original nature. New ideas, new designs are always welcome, it is the designer who is frequently unpopular.

Into this question of the selection of machines many things enter. At present the pilot's views enter largely. This is quite right as the science is still one of danger to its practical adherents. But safety will come and then the pilot's opinion will matter but little. A motor-bus driver, if asked for his opinion, would like all 'buses to resemble a Rolls-Royce limousine, and all errand boys would prefer racing-cars to one-cylinder delivery tri-cars. But both classes would be wrong. The pilot looks at matters much in the same light. The small fast machine is highly amenable to control and is therefore likely to be more popular than the family aerial coach which may perchance take a major-general or even a field-marshal and his staff for a celestial trip. Thus it will be seen that as to type the pilot's views ought to be largely discounted. The A.I.D. will have at hand enough carefully sifted reports on the experiences—not the views—of pilots from which much useful knowledge can be drawn.

No less than the pilot, the constructor has his ideas of what is the perfect machine. He also is in need, and will be in need, of gentle repression. He is at times as bad as a journalist. The same type of argument which applies to the pilot applies to him. In this repression of the people who say most and know least the A.I.D. would earn a fair amount of unpopularity—but, then, efficiency is rarely attained without some loss of popularity. And after all it is popularity that makes the wine-bill excessive.

In a Utopian State this formulation of design would properly be the duty of an office of scientists, but in a country which endeavours to be practical this is hardly possible. Scientists are constantly endeavouring to prove theories rather than



A Bristol biplane presented to the Roumanian Army by the inhabitants of Silistra, Roumania's new possession. Above is seen a Roumanian officer-aviator with a Silistran notability, the first passenger in the district.

THE BEARDMORE AUSTRO-DAIMLER DESIGN AERO ENGINE

FITTED TO LOHNER BIPLANE

—: WINS THE:—

SCHICHT PRIZE

OFFERED BY THE SCHICHT CO. OF AUSTRIA, TO THE WINNER
— OF A CIRCULAR FLIGHT EXTENDING OVER THREE DAYS —

— PROVING IT YET AGAIN TO BE —
THE WORLD'S FINEST AEROPLANE ENGINE

BEARDMORE AUSTRO-DAIMLER AERO ENGINE, LTD.

Selling Representatives:—

AUSTRIAN-DAIMLER MOTOR CO., LTD.

112, GREAT PORTLAND STREET, LONDON, W.

C.D.C.

MEN WHO "LOOP,"



M. Pegoud.

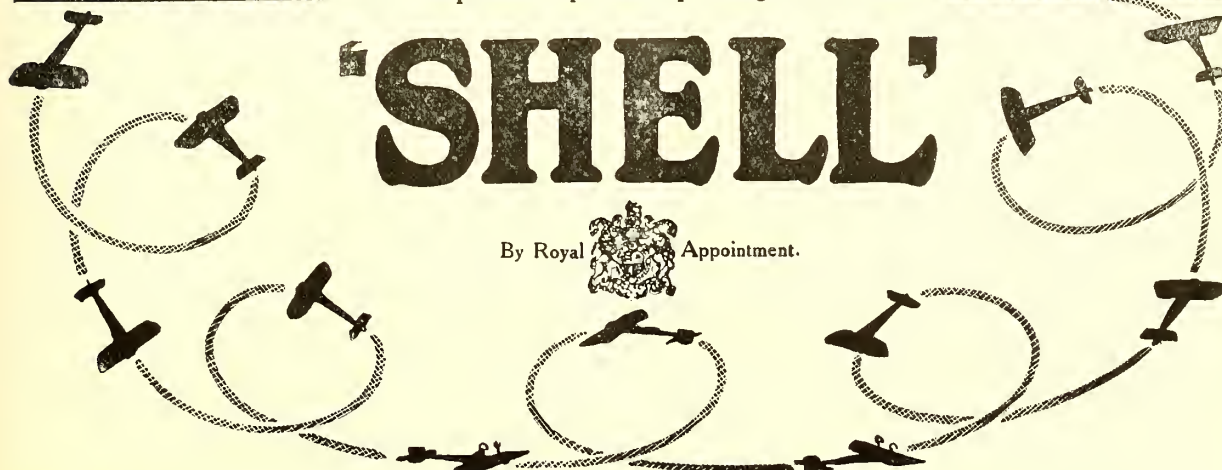
fly upside down, and display their skill in daring evolutions take no risks regarding motor spirit. It is significant, therefore, that in his sensational flights at Brooklands M. Pegoud used "Shell." Mr. Hamel, the first aviator to "loop-the-loop" with passenger, also uses



Mr Hamel.

'SHELL'

By Royal Appointment.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

build aeroplanes. The advance of to-morrow is more to them than the march of to-day. Moreover, such scientific bodies as we have in the Government service are excluded for other reasons. The Royal Aircraft Factory is supposed to combine practice and theory with much nicety, but this place cannot exercise control over the design of aeroplanes in that it is itself a competitor in aircraft manufacture with firms which are not blessed with public money. The N.P.L., a theoretic institution possessing theoretic advantages, is out of the running because it is, and must remain, completely out of touch with contemporary military thought.

Military aircraft are not military machines designed according to the ideas of aeroplane constructors, but flying machines shaped according to the soldier's wish. It is clear, therefore, that the A.I.D. is the proper authority for the control of the matériel of the R.F.C. In the monthly reports which might be made by squadron commanders to the A.I.D. might be found the indications of new requirements and of the trend of design. On the other hand the General Staff will demand more and more of aeroplanes, and this in itself will help in the production of an ideal machine.

That the Inspection Department should be free from suspicion all serious accidents should be investigated by an outside body, such as, if it would accept the work, the Royal Aero Club.

The officers of the department would be largely drawn from the personnel of the R.F.C., with possibly the occasional addition of a civilian with a deep knowledge of design and an amount of sanity unusual in the ordinary designer.

In the A.I.D. there would be officers with special knowledge not drawn exclusively from experience of aircraft engines. A

few anxious months with motor transport is a liberal training in all the possible ways an engine can go wrong. This engine staff would, as in the case of the aircraft people, draw up a series of rules for the design of aeroplane engines of varied types. Under such rules all 8-cylinder V-type engines or, say, 150 h.p. would fit the same engine bearers and the same engine housing, as indicated in a recent article on standardisation. Similarly with other engines of different types and different powers. This would simplify design and construction of aircraft considerably. The manufacturer would proceed without thinking of the engine, except so far as specifying a type (radial, rotary, vertical, en V and so on) and power. Powers would be codified. Instead of one maker building a 90 h.p. motor and another a 75 h.p., all makers would build motors of 80 h.p. or 100 h.p., and so on through all the range of power.

The commanding officer, A.I.D., would report direct to the Director-General of Military Aeronautics and would be equal in rank to the O.C., R.F.C. (Military Wing).

[The Editor wishes to express his absolute agreement with Mr. Whittaker's views. All those concerned with the making of aeroplanes must realise by now that practically every step in the development of our aerial defence force has been foreshadowed, or directly foretold, in this paper, and Mr. Whittaker's prophecy above is merely another warning to the aeroplane industry as to the direction in which developments must move. The industry can thank its stars that these developments are out of the hands of axe-grinding, string-pulling civilian officials and under the control of soldiers who can be depended upon to act courteously and honestly, and in the true interest of progress.]

Reports of the Accidents Investigation Committee of the Royal Aero Club.

REPORT No. 20.—On the fatal accident to Mr. George Lancelot Gipps:—

Mr. Frederick Warren Merriam was flying a Bristol monoplane fitted with a 50-h.p. Gnome engine at Larkhill, Salisbury Plain, on Monday, January 26th, 1914, at about 4.45 p.m., with Mr. George Lancelot Gipps as a passenger for an instructional flight. The flight had lasted about five minutes, during which time a circuit had been made at a height of about 80 ft. In making a noticeably flat left-hand turn, the aircraft suddenly banked steeply and, making a quarter-turn, nose dived to the ground from a height of about 50 ft. The pilot, Mr. Merriam, was injured, but the passenger, Mr. Gipps, was killed.

From the consideration of the evidence, the committee regards the following facts as clearly established:—

1. The aircraft was built in May, 1912, and completely reconstructed in September, 1913.
2. The pilot and passenger were sitting side by side, and the flight was being made for instructional purposes.
3. The wind at the time of the accident was about 8 to 12 miles per hour.
4. The aircraft was fitted with a dual control, giving equal power of control to both pilot and passenger, and without means of disconnecting the passenger's control.
5. Neither the pilot nor the passenger was strapped in, and they were not wearing helmets.
6. The aircraft was not fitted with an engine revolution indicator, air speed meter or banking indicator.
7. The pilot was under the impression that the passenger was resisting his control.
8. The controls were found to be intact after the accident.

Opinion.—The committee is of opinion that the accident was due primarily to ruddering violently when the aircraft was unbanked, causing it to sideslip outwards, lose way and nose dive. The over-ruddering was due to the action of the passenger in first resisting the control of the pilot and then suddenly yielding.

Recommendation.—The committee recommends that in all dual-controlled machines used for instructional purposes, means should be provided whereby the instructor can instantly disconnect the passenger's control.

REPORT No. 21.—On the fatal accident to Sergt. Eric Norman Deane, R.F.C.:—

Sergt. Eric Norman Deane was flying a Bristol biplane (pusher type), fitted with a 50-h.p. Gnome engine, at the Brooklands Aerodrome, Weybridge, on Wednesday, April 8th, 1914, at about 7.30 a.m., and was undergoing the test for his aviator's certificate. He had completed the two sets of figures 8 and alightings in a satisfactory manner and was carrying out the altitude test at the time of the accident. At a height of about 1,000 ft., the pilot commenced a spiral descent at a very steep angle. After descending about 600 ft., and when about 400 ft. from the ground, the pilot fell out of the aircraft and was killed.

From the consideration of the evidence, the committee regards the following facts as clearly established:—1. The aircraft was built by the British and Colonial Aeroplane Co., Ltd., in November, 1913, and was of a type in which the pilot sits on the front edge of the lower plane with the engine and propeller behind, and is quite unenclosed. 2. The wind at the time of the accident was about 5 miles per hour. 3. The control wires were found to be intact after the accident.

4. Sergt. Deane had been a pupil at the Bristol School for about six weeks, and during the latter part of the time had made many good flights. 5. The School instructor has stated that in his opinion Sergt. Deane was fully competent to pass the tests for his aviator's certificate. 6. The pilot was not strapped into his seat, nor was the aircraft fitted with a safety belt. 7. A spiral descent is not laid down as part of the tests for aviators' certificates.

Opinion.—The committee is of opinion that the accident was due primarily to the pilot forcing the aircraft down at too steep an angle, resulting in his falling forward on his control and accentuating the steepness of the descent.

Recommendation.—In view of the numerous instances which have come before the committee in which the use of a safety belt might conceivably have either prevented the accident or mitigated the results, the committee strongly recommends that all aircraft be fitted for and with some form of quick-release safety belt in order that the pilot may avail himself of this safeguard should he wish to do so. In making this recommendation the committee is fully alive to the objections that have been raised to the use of the safety belt.

Naval and Military Aeronautics.

From the London Gazette, Tuesday, May 12th:—

WAR OFFICE, MAY 12TH.

REGULAR FORCES.

ROYAL FLYING CORPS, CENTRAL FLYING SCHOOL.

Captain Andrew G. Board, South Wales Borderers, a flight commander, Military Wing, to be an instructor, vice Captain J. M. Salmond, King's Own (Royal Lancaster Regiment). Dated May 1st, 1914.

MILITARY WING.

Captain John M. Salmond, King's Own (Royal Lancaster Regiment), a squadron commander, is granted the temporary rank of major. Dated May 1st, 1914.

Captain Charles A. H. Longcroft, Welsh Regiment, a flight commander, is advanced to squadron commander, and is granted the temporary rank of major whilst so employed. Dated May 1st, 1914.

The undermentioned flying officers are advanced to flight commanders. Dated May 1st, 1914: *Lieutenant George B. Stopford, Royal Artillery; *Lieutenant George I. Carmichael, Royal Artillery; *Lieutenant Edward G. Harvey, Duke of Edinburgh's (Wiltshire Regiment); *Lieutenant Arthur H. L. Soames, 3rd (King's Own) Hussars; *Lieutenant Felton V. Holt, Oxfordshire and Buckinghamshire Light Infantry; Captain Wilfrid Picton-Warlow, Welsh Regiment; Captain George E. Todd, Welsh Regiment; and Captain Ulick J. D. Bourke, Oxfordshire and Buckinghamshire Light Infantry. *Is granted the temporary rank of captain whilst so employed.

TERRITORIAL FORCE.

ROYAL HORSE ARTILLERY.

Warwickshire.—Lieut. (Hon. Lieut. in the Army) R. Grey to be Capt. (to remain seconded) (March 15th).

From the London Gazette, May 14th:—

War Office, May 15th.—Regular Forces.—Establishments.—Royal Flying Corps (Military Wing).—The undermentioned appointments to take effect from April 28th, 1914: To be flying officers, and to be seconded: Capt. Lionel E. O. Charlton, D.S.O., Lancashire Fusiliers; Lieut. Augustus C. E. Marsh, Royal Artillery; Lieut. Amyas E. Borton, Black Watch (Royal Highlanders); Lieut. Hyacinth J. A. Roche, Royal Munster Fusiliers; Lieut. Robert J. F. Barton, Royal Scots Fusiliers; Lieut. Wilfrid R. Freeman, Manchester Regiment; Lieut. William H. C. Mansfield, King's (Shropshire Light Infantry); Lieut. Charles B. Spence, Royal Artillery; and Second Lieut. William R. Read, 1st (King's) Dragoon Guards.

To the Reserve: Capt. Robert A. Boger, Royal Engineers; Capt. Hugh C. T. Dowding, Royal Artillery; Lieut. Alexander F. A. Hooper, Prince of Wales's (North Staffordshire Regi-

ment); Lieut. William F. MacNeece, Queen's Own (Royal West Kent Regiment); Lieut. Hugh F. M. Worthington-Wilmer, Royal Scots (Lothian Regiment); and Second Lieut. William F. R. Dobie, Gordon Highlanders.

Capt. Lionel E. O. Charlton, D.S.O., Lancashire Fusiliers, a flying officer, to be a flight commander. Dated May 1st, 1914.

NAVAL.

Admiralty appointments, May 13th:—

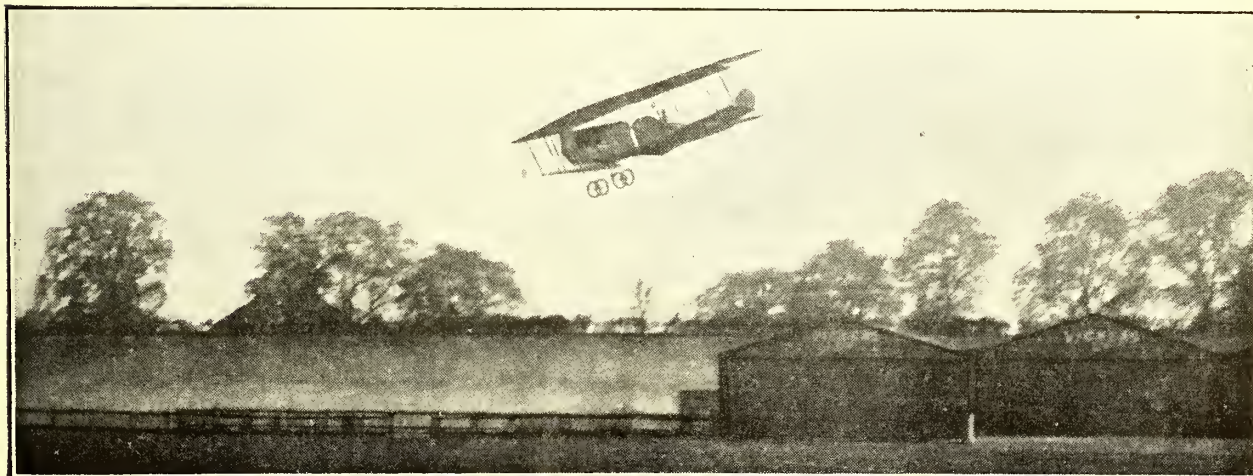
Lieutenants.—J. T. Babington, to the "Pembroke," additional, for Isle of Grain Naval Air Station, and F. E. T. Hewlett, to the "Pembroke," additional, temporary, both as flight commanders, to date May 6th.

The sixth course at the Central Flying School, Upavon, began on May 12th, when the following officers joined for a three months' course to qualify for the Naval Air Service.

Lieuts. J. F. Williams (of the battleship "Lord Nelson") and G. W. W. Hooper (of the cruiser "Duke of Edinburgh"), Sub-Lieuts. G. R. Bromet (of the destroyer "Lapwing"), and L. Tomkinson (of the destroyer "Basilisk"), Sub-Lieut. R. Wright, R.N.R., and Probationary Sub-Lieuts. F. M. L. Barr, H. G. Wanklyn, F. M. R. Cripps, B. F. Bainsmith, and L. B. Hay, R.N.R.

On Wednesday, May 13th, Lieut. Collet, R.M.A., of the Naval Air Service, detailed for experimental work on German aeroplanes, made one of the longest duration flights yet accomplished in Great Britain. He left Portsmouth at 7.30 a.m. on a D.F.W. biplane (100-h.p. Mercédès) hoping to fly to Wick. Shortly after starting he lost his map, which blew from its holder, and he decided to try and strike the East Coast. He encountered a strong head wind and rain, but flew against it for six hours at heights varying from 500 ft. to 2,000 ft. Following the coast he was within sight of Spurn Head when his engine gave out, and he had to land. He turned up the Humber from Donna Nook, and came down at Jennings's Farm, after flying for 7½ hours. Fuel for 15 hours was carried, and with the pilot and equipment the total useful load was 1,400 lbs., the aeroplane itself weighing 1,550 lbs. The total weight in the air was thus 2,950 lbs.

At the Naval Flying School at Eastchurch on Monday, in fine weather, Shorts No. 2 (50 h.p.), No. 3 (80 h.p.), and No. 34 (50 h.p.), Avro No. 150 (50 h.p.), Sopwith No. 104 (80 h.p.) and B.E. biplane No. 50 (70 h.p. Renault), were in use. Lieut. Littleton, R.N.R., flew to Whitstable on Avro No. 150. The weather on Tuesday was also fine, and Shorts No. 2 and No. 66 (80-h.p. gun-carrier), Deperdussin No. 36 (70-h.p. Anzani), B.E.s No. 49 and No. 50, Deperdussin No. 7, and Bristol No. 24 (50 h.p.), were flying



Lieut. Collet, R.M.A., landing at Brooklands on the D.F.W. on which he made his long flight last week

On Wednesday, Shorts Nos. 2, 3, and 62, Henri Farman No. 31, B.E. No. 50, Bristol tractor No. 43 (80 h.p.), and Avro No. 150 were in use. Thursday was also a busy day, when Shorts No. 2, No. 10 (140 h.p.), Bristol tractor No. 43, Henri Farman No. 31, Avro No. 150, B.E.s No. 49 and 50, Caudron No. 40, were flown a great deal. On Friday, Lieut. Davis, R.N., made a cross-country flight with a passenger on Bristol tractor No. 43 (80-h.p. Gnome). Sopwith No. 104, Avro 150, Bristol 153, B.E. No. 49, Short No. 66, B.E. No. 50, Henri Farman No. 31, and Shorts No. 2 and No. 62 were flown. On Saturday there was more wind. The machines used were Sopwith No. 104, Henri Farman No. 31, B.E.s 49 and 50, Bristol No. 153, Short No. 2, Avro 150, and Bristol No. 43.

At Calshot on Monday of last week the 90-h.p. Salmson-Maurice Farman was flying at considerable heights, and the Sopwith bat-boat (90-h.p. Austro-Daimler) flew morning and afternoon. A Sopwith seaplane (Mr. Hawker's "Daily Mail" machine with a 100-h.p. Green engine) was out in the afternoon. On Tuesday the Maurice Farman (90-h.p. Salmson) and the Sopwith (100-h.p. Green) were out again, and on Wednesday the Maurice Farman spent the day flying up and down Southampton Water. In the evening Mr. Hamel flew over from Southampton and gave a demonstration of trick-flying.

On Thursday a machine unknown, but reported to have been Mr. Hamel's, passed over Calshot at 7,000 ft. In the afternoon the Sopwith gun-carrier (200-h.p. Salmson) was flying, and later a B.E. was seen over Southampton Water. On Friday the Maurice Farman was in service in the morning and the Sopwith (100-h.p. Green) flew to Portsmouth in the afternoon.

On Friday at Calshot tests of another Sopwith seaplane (100-h.p. Anzani) for the Greek Government were interrupted by breakage of the starting-gear for the motor—a trouble which has occurred before with these starting-gears, and which is much to be regretted as tending to damage the reputation of an otherwise extremely good motor.

On Sunday the Sopwith (200-h.p. Salmson) bat-boat, so much admired at Olympia, was out for trials between 7.30 and 8.30 p.m. The machine gets off the water extremely quickly and appears to climb very fast indeed, and her speed is estimated by competent observers to be about 70 m.p.h.

On Tuesday, at Dundee, Major Gordon, R.M.L.I., with A.M. Fitall, on Short 75 (100-h.p. Gnome), flew over the Tay. On his return to the slipway, Capt. Kilner, who has lately been transferred to this station, took charge, and with A.M. Hamilton flew up the Tay. Coming back with the wind, he was flying at 90 miles per hour, but had a stiff fight facing it.

On Thursday, on the same machine, Major Gordon, with Chief A.M. Russell, made a test flight to the Tay Bridge and back. As he descended, Capt. Kilner, with C.A.M. Usher, set out on Short 74 for the Tay Bridge. He turned and came back down the river, and as he passed the base, Major Gordon rose on No. 75 and both machines flew down the Tay and round the coast to St. Andrews, returning after a stop of about an hour. After landing, the pilots exchanged machines and gave a good display of banking.

At Yarmouth, on May 11th, Lieut. Bone, R.N., took out M. Farman seaplane (No. 29), followed by Sub-Lieut. Kershaw, R.N.R., and Lieut. Sitwell, R.N., all pilots making fine landings. On the 12th, Lieut. Bone made an early morning flight on M. Farman 29, flying over nine submarines and destroyers as they left the Yarmouth Roads. On the 15th, Lieut. Bone flew the M. Farman land machine, with A.M. McCarton, from Yarmouth to Heathersett, near Norwich, to see Mr. Hucks looping. The journey took 15 mins. there and 20 mins. back. On the 16th, Sub-Lieut. Kershaw was out in M. Farman biplane 29.

On Friday last, Mr. Winston Churchill visited the Naval Air Station at Isle of Grain, whence, piloted by Lieut. Seddon, R.N., he flew in the direction of Felixstowe on Short seaplane No. 19. On the way engine trouble developed, so seaplane No. 24 was sent to their assistance.

On Saturday, Mr. Churchill went to Eastchurch and practised "taxi-ing" and short flights alone on a Bristol biplane.

On Sunday, Mr. Churchill entertained Mr. Hamel to lunch on the "Enchantress." Mr. Hamel then took a passenger

up in his Morane, and after climbing to 2,000 ft., looped six times on the way down.

BOWER.—On May 15th, at 12, Cadogan Mansions, to the wife of Lieut. John Graham Bower, R.N., of Droxford, Hants—a girl.

Lieut. Bower learnt to fly at the Bristol School on Salisbury Plain, and proved an excellent pilot, making many fine flights on monoplanes. He started in the Mortimer-Singer competition of 1912, for Service pilots, and was flying well in a bad wind when he was brought down by engine failure. He has had a distinguished career in the Submarine Service.

LONGMORE.—On May 14th, at Warsash, Hants, the wife of Lieut.-Commander A. M. Longmore, R.N., R.F.C., of a daughter.

Lieut. Longmore, now commanding the Naval Air Station at Calshot, and formerly commanding at Cromarty, was one of the first four naval aviators to fly officially, being taught at Eastchurch by Mr. G. B. Cockburn on machines lent by Mr. Frank McClean.

MILITARY.

The following communiqué has been received:—

ROYAL FLYING CORPS (MILITARY WING).

Diary of work for the week ending May 16th, 1914:—

No. 2 Squadron.—No. 2 Squadron Aircraft, and complete with Mechanical Transport and personnel under the command of Brevet Major C. J. Burke, left Montrose on Monday, the 11th instant, on its journey to Netheravon, Salisbury Plain, to take part in the R.F.C. Military Wing Concentration Camp.

The itinerary has been as follows:—

Monday, 11th instant, left Montrose; arrived Edinburgh.

Tuesday, 12th instant, left Edinburgh; arrived Berwick.

Wednesday, 13th instant, left Berwick; arrived Blythe.

Thursday, 14th instant, left Blythe, arrived West Hartlepool.

The Aircraft and Mechanical Transport arrived to scheduled time at the points mentioned.

On Friday, the 15th instant, during the flight from West Hartlepool to York, the machines ran into a thick bank of fog. Three were wrecked and one was damaged in alighting. One of these accidents was the cause of the deeply regretted deaths of Lieutenant Empson and Air-Mechanic Cudmore. On the fog clearing, Major Burke concentrated the Squadron at the Knavesmire, York, where it was halted for the week-end as originally arranged. It will proceed via Lincoln, Northampton, and Oxford to Netheravon this week.

No. 3 Squadron.—Numerous cross-country reconnaissances took place during the week. The pilots of all three Flights were out daily.

No. 4 Squadron.—A considerable amount of flying was carried out by all the officer, N.C.O., and A.-M. pilots, including reconnaissances over Salisbury Plain and the surrounding country.

No. 5 Squadron.—The pilots of this Squadron were during the early part of the week engaged daily in reconnaissance flights.

No. 6 Squadron.—All three Flights were fully occupied in practising observation over the country round Aldershot. Several new officers reported themselves for duty with this Squadron at the termination of their course at the Central Flying School on the 9th instant.

Nos. 1 and 7 Squadrons.—The organisation of the two newly-formed squadrons was proceeded with, and instructional work, lectures on aircraft, engines, etc., were carried out.

Aircraft Park.—The Aircraft Park is kept fully occupied with overhauling engines, both aircraft and mechanical transport and with general repair work.

Headquarter Flight.—Experimental work of various kinds from aircraft and free balloons was continued.

General News.—The Royal Flying Corps (Military Wing) has suffered severely during the week. Owing to fatal accidents whilst flying, 2 officers, Captain E. V. Anderson, of the Black Watch and a Flight Commander in No. 5 Squadron, and Lieutenant J. Empson, of the Royal Fusiliers, and a Flying Officer of No. 2 Squadron, lost their lives. In

CONTRACTORS TO THE
ADMIRALTY & WAR OFFICE.

Dudbridge Iron Works Ltd.

STROUD, GLOS,

Makers and Sole Concessionaires for the
British Empire for the

Salmson
AERO - ENGINES.

Sizes from 80 B.H.P. to 300 B.H.P.
IN SINGLE UNITS.

London Office: 87 Victoria St.,
London, S.W.

Telephone—7026 Vict. Telegraph—Aeroflight, Vic. London.

THE BRITISH CAUDRON COMPANY, LTD.

(Late the W. H. EWEN AVIATION Co., Ltd.)

British built **CAUDRON** monoplanes,
biplanes, hydro-aeroplanes (combined wheels
and floats.)

The Flying School, which is one of the
most successful in this or any country, will
be carried on as usual at The London
Aerodrome, Hendon.

**THE WORLD'S DURATION
RECORD** was raised to 16 hours,
28min., 56 secs. by M. Poulet on a
CAUDRON Biplane on April 26.

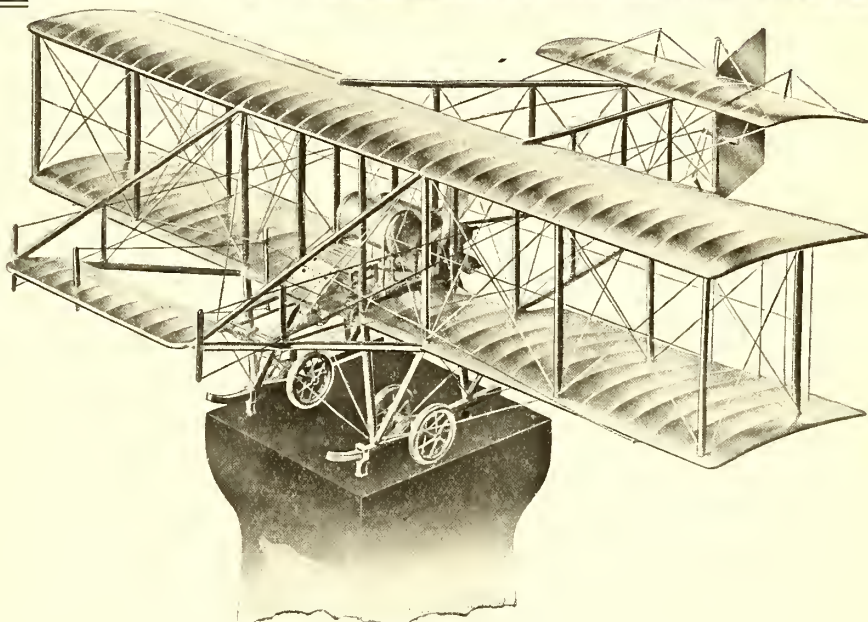
Telephone: 50 Kingsbury.

Models

The Company specialise
in the production of Sil-
ver scale Models of
Aeroplanes, and have
prepared models of the
most famous machines for
the foremost aviators.

Representative sent to any
address to take full particu-
lars upon application.

Photographs and Estimates
submitted free.



Silver scale Model of the Grahame-White Biplane, modelled by the Company.

Mappin & Webb LTD.

158-162, OXFORD STREET, W. 220, REGENT STREET, W. 2, QUEEN VICTORIA STREET, E.C.
Paris: 1, Rue de la Paix. Lausanne. Rome. Nice. Biarritz. Buenos Aires.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

each case the Air-Mechanic in charge of the engine was also killed—Air-Mechanic Carter, of No. 5 Squadron, and Air-Mechanic Cudmore, of No. 2 Squadron. The former was with Lieutenant C. W. Wilson, with whose machine Captain Anderson's collided, and the latter was with Lieutenant Empson. Lieutenant Wilson received injuries to his jaw, and is progressing favourably.

The funeral of the late Captain Anderson and Air-Mechanic Carter took place at Aldershot on the 15th instant. Besides all the officers of the Black Watch, and all the officers, warrant officers, non-commissioned officers and men of the Royal Flying Corps (Military Wing) at Farnborough, a large contingent of the Royal Flying Corps (Military Wing) from Netheravon (Nos. 3 and 4 Squadrons) was also present. In addition, the funeral procession included Colonel Marker, representing Sir Douglas Haig, General Lomax, Commanding the 1st Division, and representatives from every unit serving in the Aldershot Command.

The funeral of the late Lieutenant Empson will take place near Staddlethorpe next Wednesday at 10.30 a.m., and that of Air-Mechanic Cudmore on Thursday at 3 p.m. at Manchester.

Messages of sympathy have been received from the Prime Minister and the First Lord of the Admiralty.

War Office, May 19th, 1914.

The following officers were instructed to join the Central Flying School on May 12th:—

Major Sir B. B. M. Leighton, Bt. (T.D.), West. and Cumb. Yeo.

Capt. A. B. Burdett, York and Lanc. R. (I).

Capt. T. H. C. Frankland, R. Dub. Fus., *p.s.c.*

Capt. C. F. De S. Murphy, R. Berks. R.

Capt. A. Ross-Hume, Sco. Rif.

Capt. G. H. Cox, 3 Bn. N. Staff R.

Lieut. D. S. K. Crosbie, Arg. and Suth'd Highrs.

Lieut. F. H. Prichard, R.G.A. (I).

Lieut. V. S. E. Lindop, Leins. R.

Lieut. Lord G. Wellesley, G. Gds.

Lieut. C. G. G. Bayly, R.E.

Lieut. T. L. S. Holbrow, R.E.

Lieut. G. E. G. McClellan, 5 Bn. Worc. R.

Lieut. P. A. Broder, 5 Bn. Worc. R.

Lieut. G. L. Cruikshank, 3 Bn. Gord. Highrs.

2nd Lieut. G. J. Malcolm, R.F.A.

2nd Lieut. R. Marshall, R.F.A., Spec. Res.

2nd Lieut. (on prob.) E. K. Davies, R.F.C., Spec. Res.

2nd Lieut. (on prob.) A. L. Russell, R.F.C. Spec. Res.

2nd Lieut. (on prob.) A. A. B. Thomson, R.F.C. Spec. Res.

2nd Lieut. (on prob.) A. Payze, R.F.C. Spec. Res.

2nd Lieut. (on prob.) F. P. Adams, R.F.C. Spec. Res.

The week which has passed will long be memorable in Squadron 2, R.F.C. On Sunday, at 2.30 a.m., the reveille was sounded, and soon the motors on the parade-ground were in full blast. About 4 a.m. motor-lorries, tractors, and cycles began to stream from the back entrance to form up in a long

line in front of the barracks. In half an hour the caravan was ready, and amid cheers from those left behind, they got under way. The motors travelled at 200-yard intervals, and the motor-cycle orderlies had a busy time dashing to and fro directing operations. Lieut. Empson and Capt. Dawes went part of the way, and Lieut. Noel, who was in command, brought up the rear.

On Monday morning the men were turned out at 4.30, and in half an hour the 10 aeroplane engines were running on the ground. At 5.20 Capt. Dawes started in B.E. 229. The order of their going was Capt. Dawes 229, Capt. Todd 233, Lieut. Martyn 235, Lieut. Corballis 232, Lieut. Empson 331, Capt. Waldron 225, Lieut. Rodwell 332, Lieut. Dawes 327, Lieut. Harvey-Kelly 222, and Major Burke 228. All carried air-mechanics as passengers except the first and last, who flew alone. It was a brilliant get-off and easily the finest show which has been seen in Scotland. Capt. Todd was the first to come down, but only for a few minutes to remedy a choked pipe. Major Burke came down with an oil-pipe choked at Broxburn, and Captain Todd flew on in the evening. All the others made good flights to Redford Barracks, near Edinburgh; the average time for the 70 miles' journey was 1 hr. 20 mins., while the fastest time was 1 hr. 13 mins. In the evening a huge crowd had collected and three of the officers flew their machines over the district, Lieut. Dawes 327, Capt. Waldron 227, and Lieut. Harvey-Kelly 222 being the pilots. The transport arrived from Stirling earlier in the day.

At 2.30 next morning (Tuesday) the transport got away, while the B.E.s followed three hours later. At 6.15 Capt. Dawes arrived at Scremerston, near Berwick, and within an hour or two the other nine had arrived, Lieut. Rodwell having flown 20 miles south in mistake.

Next day (Wednesday) the machines were delayed by a strong wind, and it was about 6 p.m. before the first machine alighted at Blyth, near Newcastle. Within a short time they had all come safely.

Thursday's flight was to West Hartlepool, a distance of 40 miles, which was done in half an hour, all the ten alighting safely on the sands at Seaton Carew. The transport arrived in good time and were "parked" in the armoury field at West Hartlepool, while the men were quartered in the armoury itself.

On Friday, at 5.30 a.m., the first machine left for York. All got away beautifully, flying over the Tees and keeping west. It is said that the conditions were excellent at the start, but when they had gone about 15 miles they ran into a fog-bank. Capt. Waldron 225 had meanwhile turned back with a broken exhaust-pipe, but the engine failed before he got to the sands. He landed in the golf links, and had no time to avoid a sandbank, into which he ran, smashing his propeller and chassis. The machine was dismantled and was to be taken back to Montrose. Lieut. Harvey-Kelly 222 had worse luck still, and in a forced landing found he was in a brickfield, and in avoiding a house, struck a hedge and the machine was wrecked. The men escaped unhurt, but the machine will be



Transport of No. 2 Squadron leaving Montrose at 4 a.m. on Sunday, May 10th.

(Photograph by Dunn, Brechin.)

taken back to Montrose to be rebuilt. Lieut. Rodwell 332 was also unfortunate with engine trouble in the fog, and in descending to land he was suddenly confronted with a tree, and in banking to avoid it the aeroplane side-slipped and hit the ground. Later in the morning, as the mist cleared off, Lieut. Martyn on 235 was observed overhead and landed close by to render assistance.

Lieut. Empson on 331, with A.M. Cudmore, was the most unfortunate. No one saw him fall, but by the marks in the field he was apparently landing, and in attempting to clear a sudden hedge the skids had struck it, capsizing the machine and killing the men instantaneously. The wreckage was discovered some time later by a milkman. It was indeed a sorry day for No. 2 Squadron, and a deep sorrow has affected Montrose, where they were so well known.

Capt. Waldron and Lieut. Harvey-Kelly are to go back to Montrose to fly two spare B.E.s to replace the damaged ones.

Lieut. Lewis is left in charge of the barrack and aerodrome at Montrose, and the remaining mechanics are busy getting 272 ready for going south to the rally.

SALMOND.—On May 14th, at 1, Grenville Place, S.W., the wife of Capt. W. G. H. Salmond, Royal Artillery, of a daughter.

Capt. Salmond is also an officer of the Royal Flying Corps Reserve.

South Africa.

Six officers of the South African Union Defence Force have arrived in England to be attached to the Royal Flying Corps for training at the Central Flying School. A visit to the Continent may also be made to study various types of aeroplanes and the conditions of flying abroad. Captain Wallace commands the detachment, the other members are Lieuts. Creed, Turner, Van der Spuy, Williams, and Emmett, the last-named a nephew by marriage of General Botha, and a descendant of the great Irish patriot.

Australia.

Telegrams state that M. Guillaux has been flying at Sydney before the military authorities and carrying numerous passengers on a Farman seaplane. The machine, which was the actual one which won the Grand Prix of the Aero Club of France in 1913, created a profound impression.

FRANCE.

On April 11th the Farman escadrille, commanded by Capt. Voisin, flew from Douai to Dunkerque.

After two months of excellent scouting work, during which they travelled some 6,000 kms. round France, Captain Voisin's

Farman escadrille met with a run of bad luck on the 14th. The six machines left Dunkerque at 8 a.m., intending to fly to Le Havre and Angers. They reached Dieppe, where it was decided to land. Three machines attempted to alight on the plage, when one of them capsized into the sea, fortunately not hurting its occupants. The arrival at Bleville brought more bad luck, for a second machine capsized, and Brigadier Blot injured his knees. The four remaining machines proceeded to Havre, when the "Jeanne-d'Arc" fell into a ditch full of water, and was totally smashed, but the occupants escaped. Captain Voisin's machine had a similar fate. The two undamaged machines proceeded to Angers, and Captain Voisin's machine was sufficiently patched up to follow them.

M. André Bobba, who retired from aviation a year ago, is now taking a course at the Morane military school at Villacoublay, and he intends to take his military brevet.

On May 17th Corporal Fink was attempting to land at Verdun, but he found it impossible to stop his motor. He thereupon flew right into a hangar, the doors of which happened to be open, and crashed into three machines standing therein. All four aeroplanes were badly damaged, but the pilot escaped unhurt.

On May 16th Lieut. Campagne, on a single-seater R.E.P. monoplane, flew from Reims via Dijon to Lyon.

Corporal Cornement, who has been towing by air, accompanied by his mechanic, has covered a distance of 1,400 kms.

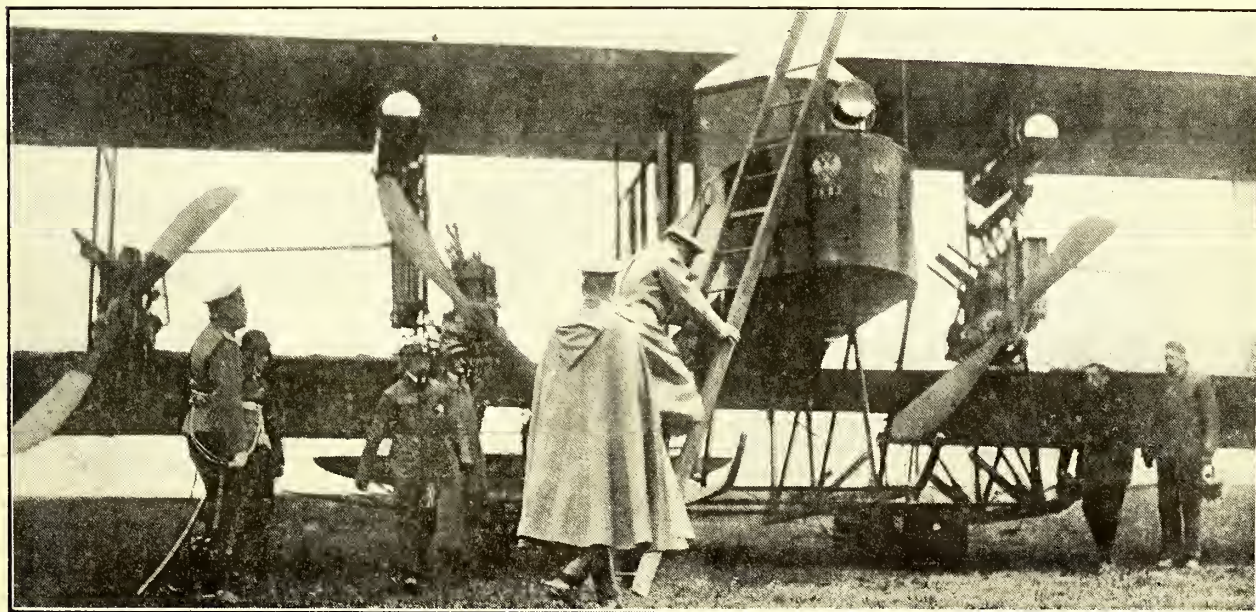
On April 11th Lieut. Mandinaud started to fly from Bordeaux to Poitiers. When he attempted to land at Angoulême he was blown over by a gust, but he escaped unhurt.

On May 9th the Blériot escadrille left Epinal and flew to Mailly under command of Capt. de la Morlaye.

As a result of the recent landings of French military aviators in Alsace-Lorraine, the Minister of War has strictly forbidden service pilots to approach the frontier in such a manner as will entail risk of getting over German territory, and when surprised by a fog they must immediately land or change their direction. The same regulations apply to dirigibles. On the other hand, the German police are issuing instructions to all police and revenue officers to make every effort to detain French officers who offend in this manner.

The large Lebaudy dirigible on order for the army is now being inflated. She is of 25,000 c.m. capacity, has engines of 1,200-h.p., and an estimated speed of 60 m.p.h.

On May 14th the military dirigible Eugène-Montgolfier flew over Paris, carrying eight passengers, and a similar journey was made on the following day with 11 passengers, during



The Tsar of Russia ascending to the nacelle of the Sikorsky biplane. The arrangement of the engines is here well shown.

which she landed her passengers solely by the aid of her descensional propeller.

Elaborate preparations are being made for the use of aeroplanes in the French naval manoeuvres. At Bizerte an escadrille of Nieuports is stationed, which will be piloted by Lieuts. Delage, de l'Escaille and Destrem and Reservist Levasseur. An escadrille is stationed at Toulon with Lieut. Duterte (Bréguet biplane, 200-h.p. Salmson), Lieut. Fournier (Voisin biplane, 130 Salmson), Lieut. Winter (Nieuport, 100-h.p. Gnome). Leading Seaman Sauzay (Voisin biplane, 100-h.p. Gnome), Reservist Moineau (Bréguet biplane, 200-h.p. Salmson), as pilots. Lieut. Nové-Josserand will fly a Caudron which will be launched from the platform on the "Foudre." A Voisin biplane, to be flown by Ensign Janvier, will also be stored on the mother-ship. M. Moineau's Bréguet is fitted with a wireless outfit which will transmit to 200 kms.

On May 12th Lieut. Fournier flew a canard Voisin seaplane from Fréjus to Toulon to take part in the naval manoeuvres. He immediately returned to Fréjus by rail to superintend the voyage of three more machines, which reached Toulon safely on the following day.

On May 12th the mother-ship "Foudre" sailed from San Raphael for Ajaccio, where she will assist at the grand manoeuvres.

On May 15th the four Nieuport seaplanes stationed at Bizerte carried out some useful reconnaissance work in connection with the naval exercises.

Algeria.

On May 13th Lieuts. Cheutin and Ménard and Quartermaster Hurard, who flew from Tunis to Oudjda, formed an escort to the Governor's party. The wife of the Governor-General of Algeria received her aerial baptism.

The three pilots who left Tunis on May 6th safely reached their objective at Oudjda on May 11th. Lieut. Cheutin, Lieut. Ménard, and Quartermaster Hurard, all mounted on Henri Farman biplanes and carrying their mechanics, made the journey of 1,317 kms. (823 miles) in four stages. Leaving Tunis on the 6th, they reached Ain-Béida (287 kms.) on the 7th; they flew to S'mila (296 kms.), and on the 8th to Chellala (290 kms.), where they stopped till May 11th, when the remaining 450 kms. to Oudjda were successfully flown with a stop for supplies at Kreider. In view of the deserted nature of the country traversed and the impossibility of landing on much of the ground, the flight is a particularly fine performance. The two other officers of the escadrille, Lieut. Battini and Quartermaster Clément, who started on the same journey, were detained at Chellala by damage to their machines caused by a gale. As soon as they have caught up their companions, the squadron will continue to Gagès via Bou-Denib and Laghouat.

Morocco.

The recent military operations at Taza has given Lieut. Morlais and Adjutant Feierstein the opportunity of active service against the rebels. Mounted on 80-h.p. Blériots, they have carried out elaborate reconnaissance work, have directed artillery fire, and have also done considerable execution by bomb-dropping.

GERMANY.

On May 17th the Prince Henry Circuit opened officially. The civilians' machines must pass tests similar to the military reception trials before starting.

The first stage is from Darmstadt to Mannheim, Pforzheim, Strasburg, Spire, Mannheim, Worms, finally alighting at Frankfurt (400 kms.) The second stage is from Frankfurt to Wiesbaden, Coblenz, Cologne, and back to Frankfurt. These two stages were to be covered from May 17th to May 19th.

The latter half of the competition demands two further stages, totalling 1,000 kms. Third stage:—Frankfurt, Marburg, Cassel, Brunswick, Hamburg, Hanover (440 kms.) Fourth stage:—Hamburg, Hanover, Minden, Herford, Munster, Osnabruck, Bremen, Hamburg (565 kms.)

Further, there are reconnaissances to be made between Hamburg and Cologne.

The entrants were as follows:—

Military Monoplanes.—Lieut. Canter, Rumpler-Taube; 2, Capt. von Dethen, Albatros-Taube; 3, Lieut. Häutelmann,

Albatros-Taube; Lieut. Joly, Gotha-Taube; 6, Lieut. Kolbe, Albatros-Taube; 8, Lieut. Pfeifer, Albatros-Taube; 9, Lieut. Putzell, Albatros-Taube. All with 100-h.p. Mercédès engines.

Military Biplanes.—10, Lieut. von Beaulieu, L.-V.-G.; 11, Lieut. Bonde, Albatros; 12, Lieut. von Buttler, L.-V.-G.; 13, Lieut. Emrich, Otto; 15, Lieut. Geyer, Aviatik; 16, Lieut. von Hiddessen, Albatros; 17, Lieut. Schlemmer, L.-V.-G.; 18, Lieut. von Thunia, L.-V.-G.; 19, Lieut. Walz, L.-V.-G.; 20, Lieut. Wentscher, L.-V.-G. All with 100-h.p. Mercédès engines also.

Civilians' Monoplanes.—21, Auslinger, Gœdecke, Mercédès 100-h.p.; 22, Von Arnim, Stipolschek, Argus 120-h.p.; 23, Beck, Kondor, Mercédès 100-h.p.; 24, Freindt, Jeannin, Argus 120-h.p.; 25, Friedrich, Rumpler, Mercédès 100-h.p.; 26, Hofig, D.-W.-F., Mercédès 100-h.p.; 27, Krummick, Gotha, Mercédès 100-h.p.; 28, Paschen, Bristol, Argus 110-h.p.; 29, Schlegel, Gotha, Mercédès 110-h.p.; 30, Stiefvater, Etlich, Mercédès 100-h.p.; 31, Stiefvater, Bulldog, Argus 120-h.p.

Civilians' Biplanes.—32, Henning, Schwade, Schwade 80-h.p.; 33, Laitich, L.-V.-G., Mercédès 100-h.p.; 34, Schauenburg, A.-E.-G., Benz 100-h.p.; 35, Schuler, Ago, Argus 140-h.p.; 36, Schröder, Sommer, Gnome 100-h.p.; 37, Sommer, Sommer, Gnome 80-h.p.; 38, Stœffler, Aviatik, Oberursel 100-h.p.; 39, Thelen, Albatros, Mercédès 75-h.p.; 40, Weyl, Otto, 140-h.p.

On May 17th Lieut. Walz and Lieut. Müller were taking part in the Prince Henry Circuit when something went wrong with the motor, the machine fell heavily, and caught fire. Lieut. Walz was badly burnt and Lieut. Müller was killed.

Two more deaths have to be reported from Stettin, where two aviator-officers were killed whilst endeavouring to land on a journey from Schwerin to Posen. They side-slipped from 300 yards and were killed on the spot. They were Lieut. Faber, of the 19th, and Lieut. Kurtz, of the 182nd Infantry Regiment.

On May 16th, Lieuts. Legrandt and Fellingner were killed at Halberstadt when attempting to effect a landing. The accident is said to be due to the breaking of a wing.

During a manoeuvre of the garrison of Metz a German aeroplane is said to have flown over the frontier into France last week, flying three times round the French village of Arnville, after which it returned to Germany.

On May 9th the airship "Viktoria-Luise" left Frankfort at 5 a.m. and flew to Oos (Baden), where she arrived at 8.25. She will be stationed there for four weeks and will then return to Frankfort. The L. III is now nearly complete and will commence her tests on May 18th at Constance. The nacelles of this dirigible are slung some distance from the envelope to remove danger of fire.

On May 16th the L.III, stationed at Friedrichshafen, reached a height of 3,125 metres, during a flight of 3½ hours. She was carrying 17 passengers, and the feat is claimed as the world's record for a dirigible.

The Schuette-Lanz military cruiser, "S.L.II," has now been permanently stationed at Liegnitz, from where Z.VI has departed.

Another way of doing things! A military balloon, with a Belgian General and Captain on board, landed near Saarburg on Sunday morning. The two officers were the guests of the 15th Field Artillery Regiment at lunch before leaving for Brussels.—B.

AUSTRIA.

The Albatros Works have erected a branch factory near Vienna and have sold a military biplane with a 100-h.p. Mercédès motor to the Austrian War Office, which is in negotiation for a number of similar machines.—B.

RUSSIA.

The Russian aviator Semichkoura was killed at Sebastopol on May 16th.

As a result of the aeronautical congress at St. Petersburg it has been decided to organise a network of air stations in Russia for both military and civil aviation. The first station will be established at Riga, on the Baltic, under the direction of the Aero and Automobile Club, where all the necessary stores for the care of both seaplanes and land machines will be installed. Other Baltic ports, such as Revel and Libau,

THE
Monk Engineering Co.,
LTD.

High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES?

Used by Messrs. Hucks
and Hamel in their
'looping demonstrations'

Officially recommended
by the Gnome Engine
Company, England



"For the Highway
and
the Skyway"

C. C. Wakefield & Co.
Wakefield House
Cheapside, London E.C.

C. D. C.

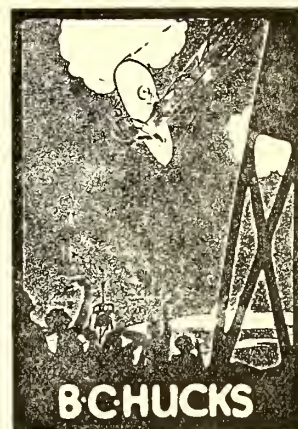
LOOPING
THE LOOP
BY
B. C. HUCKS.

This is a reproduction of the striking
16-sheet Poster, in six colours, pro-
duced by The B. C. Hucks Company
to advertise their demonstrations.

Demonstrations of
Looping the Loop by

B. C. Hucks

Mr. B. C. Hucks is the first British
Airman to Loop the Loop and fly
upside down, and is always a
powerful attraction wherever he is
announced to give his looping
demonstrations.



The B. C. HUCKS Company

Expert Organisers of Aviation Meetings

166, PICCADILLY, LONDON, W.

The B. C. Hucks Company invite inquiries from those
who wish to promote a Demonstration of Flying in any
part of the Country. Their experience in the organisation
of successful Flying Meetings is unique, and they will
willingly give advice and detailed information on request.
Address your inquiry to The B. C. Hucks Co., 166, Piccadilly,
London, W. 'Phone Regent 2942.

Fit Palmer Cord Tyres

You then have tyres that grip and
never slip, that give buoyancy and
added speed, lessen driving strains,
absorb road shocks, reduce petrol
consumption, and keep you free from
annoying tyre troubles on the road.

*Whatever your mileage or tonnage,
you can always depend on—*

PALMER
(ORIGINATORS OF THE THREE HUB TREAD)
CORD TYRE

THE PALMER TYRE, LIMITED,
119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

'Phones: 1214 Gerrard [Four lines]. 'Grams: "Tyricord. Westcent, London."

PARIS: 152, Avenue de Malakoff.—AMSTERDAM: Stadhouders-
skade 91.—GLASGOW: 6, Royal Exchange Sq.—BIRMINGHAM:
Belmont Row.—COVENTRY: St. Mary's Street.—NOTTING-
HAM: Greyfriar Gate.—LEEDS: 54, New Briggate.—
MANCHESTER: 263, Deansgate.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

will be similarly equipped. It is also seriously proposed to place accommodation for aeroplanes at Vilna, Pskow, Dvinsk and Souvalky, where institutions affiliated to the Baltic Aero Club will be in charge, whose officials will observe the passing of aeroplanes and provide motor-cars, etc., when required. It is hoped, finally, to establish stations all along the frontier within 60 miles of one another, connected by telephone.

It is reported that about May 11th Lieut. Martmann was killed by a 600-ft. fall at the aerodrome of Alexandro-Mikailowsk, near Sebastopol.

BELGIUM.

On May 11th Lieuts. Demanet and Liedel flew from Brasschaet to Beverloo in very bad weather.

On May 12th Lieut. Massaux was flying from Brasschaet to Kiewit, when he was brought down at Beverloo by hail.

On May 16th Sergeant Crombez flew from Taintignies to Brasschaet in 2½ hours, a distance of 165 kms.

DENMARK.

Peder Nielsen is the fourth Danish army officer to get his military certificate on a Maurice Farman biplane.

A well-known Danish horse-race rider, Baron Blixen-Finneke, having forgotten that he had promised to start in a race in Helsingborg, too had engaged himself to start at Copenhagen almost at the same time on Sunday, and so, to fulfil both his engagements, he flew from one horse-race to the other as the passenger of Dr. Thulin on his Morane-Saulnier monoplane. As it will be known, this is the second time such an incident takes place, the first time being in Germany, where the well-known horse-race rider, Lieut. v. Egan-Krieger, after winning a horse-race at Magdeburg, was flown by Lieut. Stoll on an army monoplane to Grünwald (Berlin), where he had his second win on that day.—Ht.

SWITZERLAND.

The Swiss Government has now decided that the aeroplanes to be adopted for service use are Blériot monoplanes, Lohner biplanes, and a special type to be built in Germany by Herr Schneider, a Swiss engineer.

U. S. A.

On or about April 26th Capt. Arthur S. Cowan, in charge of aviation work at San Diego, received orders to be prepared with his five machines for activities in Mexico. The equipment included four Burgess tractors (Renault 70-h.p. engines) and a Curtiss tractor with 100-h.p. Curtiss motor. In Capt. Cowan's

command were 10 certified military aviators, 3 more who are capable of flight but who have not received the title of military aviator, and 86 men in the aviation detachment. The Burgess Co., the Wright and Curtiss Companies have received orders to be prepared to turn out machines at quick notice. Two of the Dunne type are already on hand at Marblehead available for use. A Wright tractor, with 100-h.p. Austro-Daimler engine, is to be delivered to the army shortly from Dayton.

The Government has also been offered the services of the 44 aviators—members of the U.S. Aviation Reserve, organised by A. B. Lambert of St. Louis. The aeroplane companies have offered their shop facilities and equipment. As the Government cannot accept private offers of aeroplanes and material without payment therefor, it is probable that considerable money will be spent in the trade.

CHILE.

From "Auto y Aero," Santiago de Chile, the following interesting particulars respecting the organisation of Military Aviation in Chile are collated.

In February, 1913, it was decided to establish a school of military aviation. By the middle of April of the same year operations were started at Lo Espejo with a single school machine, one "piloto mecanico," with no sheds—no living accommodation, and with the aerodrome "in puris naturalibus." To one not a Spanish scholar, the description of the exact state of the ground is somewhat difficult to follow, but references to "scenic railways" therein indicate that it was scarcely ideal as a school ground. There appear also to have been certain difficulties with the inhabitants of the vicinity.

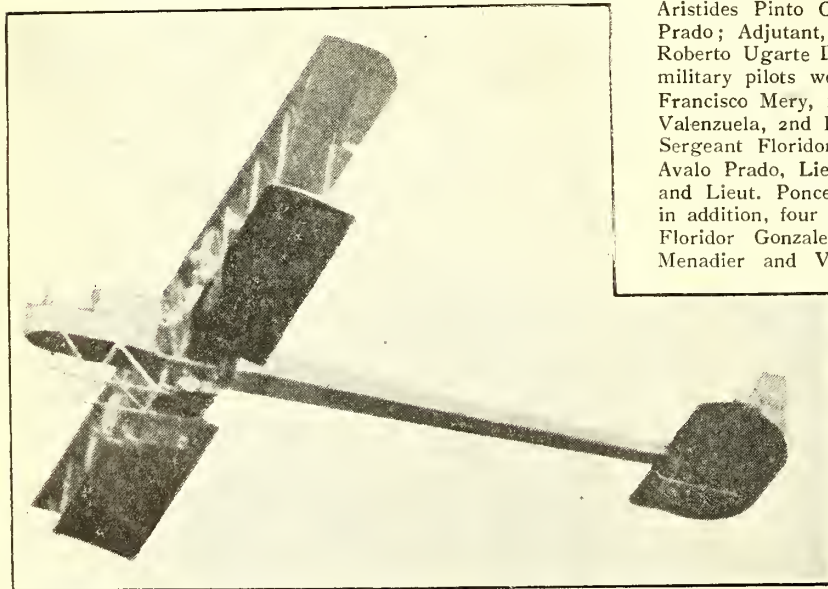
However, the various difficulties were overcome by the perseverance and enthusiasm of those concerned, and by August 13th, three officers and one sub-officer had obtained their brevets at the school, and the public antipathy so far overcome that the five pilots (one apparently having been trained abroad in the meantime), who gave an exhibition of flying at Santiago, were received with acclamations.

Between the 24th and 26th of January of this year, three officer pilots flew over triangular courses of 200 kms. with certain compulsory landings—part of the tests for the superior military brevet—and completed the tests a few days later by flights of 160 kms. in a straight line and return, with only one landing at the end of the 160 kms—during which an altitude of 1,000 metres had to be maintained for one hour.

At the end of January the personnel of the Chilean Flying Corps was as follows:—Inspector-General of Aeronautics, Gen. Aristides Pinto Concha; Commandant, Capt. Manuel Avalos Prado; Adjutant, First Lieut. Augusto Leon; Surgeon, Dr. Roberto Ugarte Donoso; Quartermaster, César Larrain. The military pilots were: 1st Lieut. Armando Urzua, 2nd Lieut. Francisco Mery, 1st Lieut. Enriquez Perez, 1st Lieut. Gabriel Valenzuela, 2nd Lieut. Julio Torres, Sergeant Luis O. Page, Sergeant Floridor Rojas—all trained in Chile, Capt. Manuel Avalo Prado, Lieut. Cazarino, Lieut. Bello, Lieut. Conheras, and Lieut. Ponce, who were trained in France. There are, in addition, four pilot mechanics—Sergeant Abel Ampuero and Floridor Gonzalez (both of Chilean training), and Sergts. Menadier and Verscheure, who, with civilian instructors,

Miguel Cabezas and Pedro Luis Donoso, were trained in Europe. Senhor P. Andrade Moss is the engineer.

There are at the aerodrome of Lo Espejo four sheds and certain portable hangars. The matériel consists of two tandem Blériots (80 Gnome), two single-seater Blériots (50 Gnome), four Bréguet biplanes (80-h.p.), one Voisin biplane (80-h.p.), four Sanchez-Beza biplanes (80-h.p.), one Deperdussin monoplane (70-h.p.), and two school Blériots and two "Penguin" Blériots, together with spare parts for each machine. A motor-car and a couple of motor transport lorries complete the equipment.



The Sikorsky Biplane flying. For this and the other photographs of this machine "The Aeroplane" is indebted to the Integral Propeller Co., Ltd., whose screws are fitted to the machine.

FIRST and FOREMOST!**THE FIRST AERIAL (1912) DERBY**

won by

T. O. M. SOPWITH

using an

INTEGRAL PROPELLER**THE SECOND AERIAL (1913) DERBY**

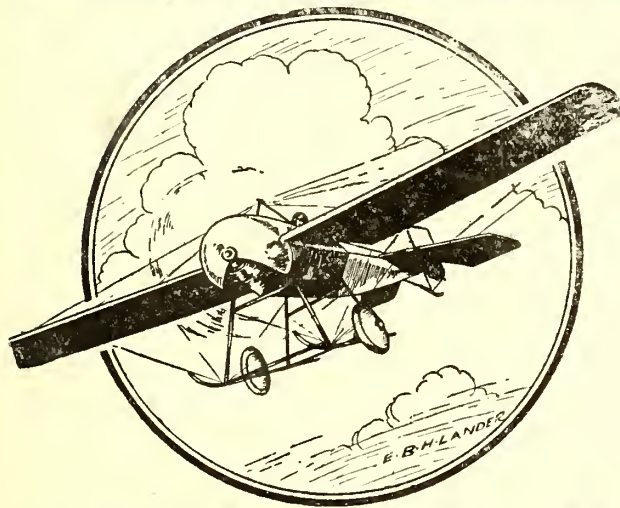
won by

GUSTAV HAMEL

using an

INTEGRAL PROPELLERSole Agents for the **FABBRI PHOTOGRAPHIC APPARATUS** and
COURSIN'S Sighting Apparatus for Bomb Dropping.

Prices and particulars from

THE INTEGRAL PROPELLER CO., LTD.,1b, ELTHORNE ROAD, UPPER HOLLOWAY, N.
Telephone: Hornsey 2345. Telegrams: "Avirop (Upholl), London."**"BLACKBURN"**Monoplanes, Biplanes, and Hydro-Biplanes,
Propellers and Accessories.**THE BLACKBURN AEROPLANE COMPANY,**
BALM ROAD, LEEDS.

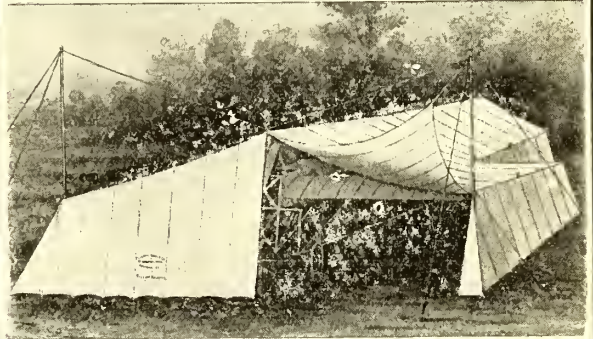
Telegrams—"Propellers, Leeds." Phone—2822 Central.

London Offices: **H. A. TURRILL**, 104, High Holborn, London.
Telephone—4950 and 1791 Holborn.**TENTS FOR AEROPLANES**The Cheapest, Lightest and most Portable Shelter for an Aeroplane is one of **PIGGOTT'S PATENT AEROPLANE TENTS.**

Pattern No. 3, suitable for a Bleriot Monoplane. Price in waterproof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS

Indispensable for Circuit Flying or Cross Country work.
Aeroplane Tents on Hire. Large number in Stock.**PIGGOTT BROTHERS & CO., LTD.**

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

LOOPING the LOOP
on the**AVRO**On the regular 50 h.p. Avro,
without any extra bracing,
Mr. Laurence Hall, of the Hall
Aviation Co., Hendon, looped
the loop. He was not strapped
into the machine other than the
usual **Avro Safety Belt.****THE AVRO for STRENGTH**
for simple control, efficiency and general utility.**NOTHING BETTER.****A. V. ROE & CO., LTD.**Clifton Street, Miles Platting,
MANCHESTER.Telegrams:
"Triplane, Manchester."Telephone:
337 Failssworth.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Aerial Derby.

Some of the Competitors—Left to Right, top row, Messrs. Carr, Verrier, Strange and Alcock. Middle row, Messrs. Sippe, Goodden, Noel, Blackburn and Barnwell. Bottom row, Messrs. Waterfall, Pixton, Busted and Hamel.

Saturday next sees the first of the big air races which are to take place in Great Britain this year, namely, the Aerial Derby round London. The course is the same as that of last year, being a circuit of 95 miles, with turning points at Kempton Park, Epsom, West Thurrock, Epping and Hertford.

The competitors will start at intervals of one minute, the first leaving at 4.15 p.m. and the winner should arrive shortly after 5 p.m. In conjunction with the race a sealed handicap will be flown, each machine being allotted a certain handicap, which handicap is deducted from that competitor's flying time at the finish, so that the pilot doing the fastest time after his handicap has been deducted, wins the handicap. In this way,

the winner of the Aerial Derby itself may also win the handicap, but there is quite as much chance of the handicap being won by the slowest machine in the race.

The event is of unusual interest this year, as the British machines are for the first time undoubtedly able to hold their own against their foreign competitors. So far as one can see, there is no foreign machine in the race which is likely to touch the speed of the various British "scouts," unless Mr. Hamel manages to borrow one of the 160 Moranes. One hears that Mr. Hamel has the option on a Morane which is credited with doing 105 m.p.h. with 80-h.p., but if such a machine exists, it must be very different from anything that has yet appeared.

On paper, the fastest machine in the race is Mr. Pixton's Sopwith with 100-h.p. monosoupape Gnome, but no one knows what the speed of the new Bristol and Vickers "scouts" is likely to be.

At the time for the closing of entries those actually in hand were as follows:—

No.	Pilot.	Machine	Type	Engine	Nationality
1	F. Hansen	Caudron	B...	50 Statax	German
2	R. H. Carr	Grahame-White	B...	50 Gnome	British
3	M. Zuhia	Caudron	B...	45 Anzani	Spanish
4	P. Verrier	H. Farman	B...	80 Gnome	French
5	J. Blatherwick	Martinsyde	B...	60 Antoinette	British
6	L. Strange	Blériot	B...	80 Gnome	British
7	J. Alcock	M. Farman	B...	100 Sunbeam	British
8	Rowland Ding	Handley Page	B...	100 Anzani	British
9	S. V. Sippe	Bristol	B...	80 Gnome	British
10	F. Goodden	Morane	B...	80 Gnome	British
11	L. Noel	Grahame-White	B...	100 Gnome	French
12	Lord Carbery	Morane	B...	80 le Rhone	British
13	H. Blackburn	Avro	B...	80 Gnome	British
14	F. P. Raynham	Avro	B...	80 Gnome	British
15	R. H. Barnwell	Vickers	B...	100 Gnome	British
16	V. Waterfall	Martinsyde	B...	120 Austro-Daimler	British
17	?	Morane	B...	80 Gnome	—
18	H. Busted	Bristol	B...	80 Gnome	Australian
19	?	Sopwith	B...	80 Gnome	—
20	H. Pixton	Sopwith	B...	100 Gnome	British
21	Gustav Hamel	Morane	B...	160 Gnome	British

The Royal Aero Club.

At the committee meeting on May 12th, the following aviators' certificates were granted:—774, W. R. Ding (Wright biplane, Beatty School, Hendon), April 27th, 1914; 775, Air Mechanic A. J. Locker (Bristol biplane, Bristol School, Salisbury Plain), April 28th, 1914; 776, Eric Parker (Grahame-White biplane, Grahame-White School, Hendon), April 29th, 1914; 777, Lieut. William Annesley Underhill (Worcestershire Regiment), (Vickers biplane, Vickers School, Brooklands), May 10th, 1914; 778, Robert John MacGeagh Hurst (Vickers biplane, Vickers School, Brooklands), May 10th, 1914; 779, 2nd Lieut. Cuthbert Evan Charles Rabagliati (King's Own Yorkshire L.I.), (Bristol biplane, Bristol School, Brooklands), May 11th, 1914;

The following certificate was passed in America:—Thomas Melville Ross (Curtiss biplane, San Diego), April 13th, 1914.

The following certificates were passed in France:—Charles Ricou (Maurice Farman biplane, Etampes), April 10th, 1914;

Capt. James Edward Pearce (Maurice Farman biplane, Etampes), April 21st, 1914.

The Gordon-Bennett Eliminating Trials.

A meeting of the competitions committee of the Royal Aero Club was held on May 7th when, at the invitation of the committee, the entrants for the Gordon-Bennett Aviation Race attended, the representatives being:—Mr. Cedric Lee (The Cedric Lee Co.), Capt. H. Lutwyche (A. V. Roe and Co., Ltd.), Mr. H. White Smith (British and Colonial Aeroplane Co., Ltd.), Mr. T. O. M. Sopwith (Sopwith Aviation Co.), and Capt. H. F. Wood (Vickers, Ltd.).

It was decided to hold the eliminating trials on Salisbury Plain during the last week in August. Each entrant will be allowed to fly three machines in the trials, and no machine will be selected unless it has flown in the trials.

The trials will consist of (a) Slow Speed Test, and (b) Speed Test. In the case of the Speed Test it was decided to have this over a course of about 10 kilometres, and to fly the full distance of the Gordon-Bennett Race, viz., 200 kilometres.

"Daily Mail" Circuit of Britain Race, £5000.

Date of Contest, August 1st to 15th.

Starting Place, Southampton.

Entries.—The Entrance Fee is £100 per aircraft, and entries will be received up to 12 o'clock noon, May 30th, 1914. The Entrance Fee of £100 is payable either in one sum or as follows:—£50 by noon on May 30th, 1914; £50 by noon on June 20th, 1914.

Late entries will be received up to 12 noon, June 30th, 1914, in which case the Entry Fee will be £150.

The Entry Form, which must be accompanied by the Entrance Fee, must be sent in to the Secretary, Royal Aero Club, 166, Piccadilly, London, W.

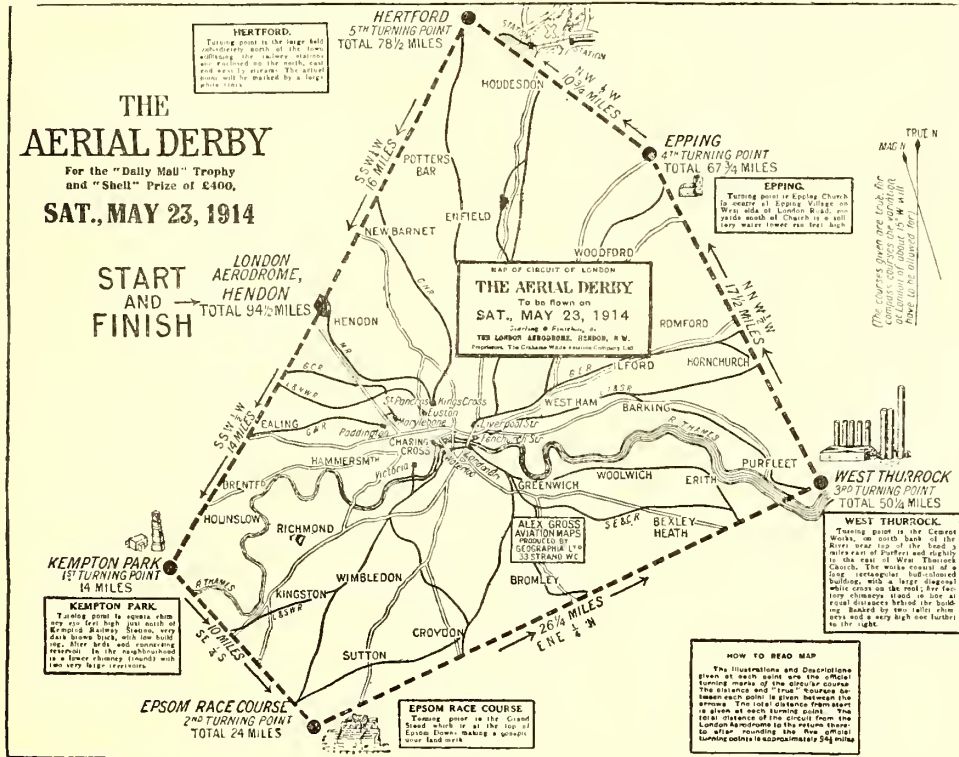
The full regulations may be obtained from the Secretary of the R.Ae.C.

Education à la "Daily Mail."

The "Daily Mail's" colossal task of educating this seafaring nation of ours to a full appreciation of the vital importance of the waterplane, progresses apace. Its French pilot, M. Salmel, on a French-built Blériot without floats has already fallen into the Severn Sea a mile from the shore, which

of course mightily impressed the good people of Watchet with a true sense of the advisability of fitting some floating apparatus to seaplanes, and he is even now awaiting the result of two summonses to appear before two of his Majesty's Petty Sessions Courts, one in Devonshire and one in Cornwall, for the alleged offence of flying over the secret places of our shore defences, otherwise known as prohibited areas. Whatever the result of the trials, this will doubtless impress on the descendants of Drake and Froisher that the foreign airman (as a genus) must be prevented from defiling their British air with his foreign castor oil.

Meantime, in order that our inland population may be equally impressed with the need for air power at sea, Mr. Raynham has been evolving in the vicinity of Birmingham, which is geographically



the exact centre of England, like the axle of a wheel, standing still while everything else moves round it. On his 80 Avro he has been starting from and alighting on a large pond known as Edgbaston reservoir.

Since then both pilots have been flying at Southport. Apropos their performances there, Mr. Monteiro writes:—

"Mr. Raynham's flying was very good indeed, as one would expect. As regards Mr. Salmet, I am sorry to say that he kept playing tricks most dangerous to the crowd. Once he was flying with the wind at a height of a foot from the ground, till he was 25 feet from the crowd, when he shot upwards.

"Another time he made a steep dive from a height of 400 ft. straight on the crowd, flattening out at a height of 20 ft. or so. In the first case, if the motor had stopped, nothing could have saved him from coming down on the crowd. I think an accident like that would not do any good to aviation, and it is in the interests of aviation that I ask you, through the medium of your columns, to try to stop such things. I think Mr. Salmet is quite good, and does not need such a method of advertising himself. Personally, I am a great admirer of Mr. Salmet, but the welfare of aviation comes first."

Levitation Up To Date.

Readers of "The Aeroplane" will doubtless have noticed, in the daily papers of the past two weeks, various accounts of the Bachelet "Flying Railway." Despite the inevitable inaccuracy of such accounts a sufficiency of data was given to enable those acquainted with electrical engineering to realise that here was nothing either startlingly new or probably practicable, an impression by no means removed by a close inspection of the model track at Saffron Hill. Briefly, M. Bachelet proposes to lay a track with a series of alternating current electro magnets, and to provide the car with a base of some metal of light weight and high electrical conductivity, which, by reactions well known to electrical students, will be repelled by the electro magnets when the latter are energised, and thus lifted clear of the track.

Having thus abolished rail friction, M. Bachelet entertains the hope that enormously high speeds may be obtained—300 miles per hour is the "haven of his desire." M. Bachelet claims to lift 15 lbs. for each h.p. dissipated in the track coils—which do nothing but lift, and as an aeroplane will lift, and also propel at 60 to 70 miles per hour, something between 30 and 40 lbs. per h.p., this system does not seem to threaten the development of present types of aircraft seriously.

M. Bachelet estimates the capital cost of laying a full-size track on his principles at about £5000 per mile. One would like to see estimates by competent engineers on this point. An acquaintance with ordinary electric tramway and railway work, which may cost as much for permanent way and overhead trolley wire construction alone, suggests that there is a mistake in the placing of the decimal point, and therefore the capital charges on the system will be rather high.

Apparently, M. Bachelet's estimate of head resistance at the speeds he desires is rather optimistic; but his own figures suggest the necessity of employing 2,000 to 3,000 h.p. as a minimum for propulsion alone (at 300 miles per hour) for any car capable of carrying human beings of normal size, though reasonable anticipations based on head resistance figures of unimpeachable parentage indicate that these figures should at least be doubled. In fact, to modify a classic phrase, "the cost will be practically prohibitive."

Except possibly as a pseudo-scientific music hall turn—analogue to the "magic kettle" of liquid air, or the "mysteries" of Mr. Devant, or the "wireless dirigible"—there does not appear to be great utility in the production—one cannot call it an invention—but as such it would appear to have decided possibilities. So far it has undoubtedly supplied a number of hard-worked Government officials with a pleasing interlude in the humdrum monotony of their daily routine, and has provided much "copy" of the kind most appreciated by the daily press, so that it has not altogether failed of a useful purpose.

A Wight Seaplane for Germany.

On Saturday last "Wight" seaplane No. 5, built by J. Samuel White and Co., Ltd. for the German Navy, made her maiden flight. Mr. Gordon England took the machine out in a fairly strong wind and a three-foot sea, accompanied by Mr. Howard T. Wright, the designer and manager of the firm's aviation department, as passenger. After a preliminary run on the water Mr. England took the machine off in the usual "Wight" style and made a flight of fifteen minutes' duration. Captain von Pustau, who witnessed this preliminary test on behalf of the purchasers, was delighted with the behaviour of the machine.

A Flying Corps Accident Fund.

The following letter has been received:—

"The Women's Patriotic Aerial League have resolved to raise a Fund for the purpose of offering financial assistance to the widows or nearest dependents of British Naval and Military Officers, Non-Commissioned Officers and Mechanics who are killed or permanently disabled while on duty. The League feels that special help is needed because the science is still in its experimental stages and the brave men who are conquering difficulties are exposed to grave dangers and risks in the service of their country.

"The widows of those killed on flying duty receive the same pensions as the widows of men killed on active service: these pensions are very small indeed, and generally mean a life of great privation for those who have the misfortune to lose their husbands, especially if they have children and do not possess private means. Flying men are continually in danger, whereas men on active service are only in danger in time of war. Financial assistance from this fund will also be extended to the widows or families of civilian pilots.

"We would ask all patriotic men and women to subscribe to this Fund, which will be administered by the Executive Committee of the League. Every subscription will, unless otherwise marked, be acknowledged in the London or local Press.

"Kindly send all cheques and postal orders to Colonel H. S. Massy, C.B., Hon. Treasurer of the Fund, 25, Denison House, Victoria, S.W., and crossed 'Flying Corps Accident Fund.'" (Signed) ALICE O'HAGAN (Chairman Women's Patriotic Aerial League), E. FREMANTLE (Admiral), H. S. MASSY (Colonel).

Insurance for Aviators.

Aviators are still regarded by many insurance firms as a very "outside" risk, so it is the more satisfactory to find that one company, at any rate, is now prepared to insure the lives of pilots at something like reasonable rates.

This firm is the Eagle Insurance Company, of 79, Pall Mall, S.W. The only limits are: 1. The person who is proposed for insurance must pass a satisfactory medical examination. 2. His (or her) age must be between 20 and 40. 3. The policy must be an "Endowment Insurance" with profits for 20 years or less duration, not exceeding £2,000.

A moderate extra premium is charged over and above the ordinary rate, but this is quite reasonable considering the scope of the insurance, and, presumably, the extra rate can be dropped if the insured person gives up flying. Further, the company is prepared to consider a proposal for increasing the policy for the second year, as experience shows that risks are decreasing. This policy should appeal particularly to officers of the Royal Flying Corps, especially to those who have others dependent on them. Hitherto, most firms have refused to accept insurance for an amount which can be of any material use to the family of anyone who is killed while flying.

A Repudiation.

Mrs. Buller, who last year flew well on a Bréguet in France, and is now learning cautiously and sensibly the very different handling of a Caudron at Hendon, desires it to be known that she has given no interviews to the lay press, and is not responsible for any of the statements attributed to her therein. She is a serious student of aviation and is not out for self-advertisement.

ACCLES & POLLOCK, LIMITED.**OLDBURY,
BIRMINGHAM.**

Send for 25" X 20" Chart of Full-Size Sections,—Post Free

TUBE MANIPULATION & PRESSWORK. OUR SPECIALITY.ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
ONE QUALITY—THE BEST**BLERIOT MONOPLANES****THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.**

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.**BLERIOT-AERONAUTICS.****Offices & Works : BROOKLANDS AERODROME, WEYBRIDGE, SURREY.****SPECIAL INCLUSIVE TERMS FOR TUITION.****NORBERT CHEREAU, General Manager.**

Telephone : Byfleet 190.

CELLON**DOPES 9 and 10 Make the FABRIC FIREPROOF****CELLON, LTD., 17, OLD BROAD STREET, E.C.** Telegrams : "AJAWB LONDON." Telephone : 5359 London Wall.**GODDARD'S
MOTOR, MOTOR-CYCLE,
and CYCLECAR HOUSES.**

ft.	ft.	ft.	£	s.	d.
8 x 6	x 7½	high	...	3	16 0
10 x 7	x 8	"	...	5	8 0
12 x 8	x 8	"	...	6	15 0
14 x 9	x 9	"	...	8	17 6
15 x 10	x 9	"	...	10	0 0

Carriage Paid.

These houses are made in sections to bolt together. Easily fixed. Made of well-seasoned 3 in. T. & G. and V-jointed Matchboards, and complete with floor and windows. Wide double doors, lock and key. Roof felted with Patent Vulcanite Roofing.

Large Illustrated Catalogue with prices of other houses, post free.

Makers of Portable Wooden Buildings of all descriptions.**GODDARD'S, Ltd., Crown Works, Vicarage Lane, Ilford, Essex.**

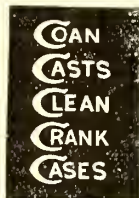
Telephone : 880 Ilford

Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality

ON ADMIRALTY AND WAR OFFICE LISTS

**R. W. COAN****219,
GOSWELL
ROAD,
LONDON, E.C.**Telegrams—
Krankases,
Isling,
London.Telephones—
3846 City
4879 Central.**H. A. TURRILL**

Aeronautical Engineer and Automobile Representative

GWYDIR CHAMBERS,

104 High Holborn, London, W.C.**AERONAUTICAL.**—Balloons, Hangars, and Blackburn Aeroplanes.**AUTOMOBILE.**—All makes of Cars supplied. Special Delivery of ARROL-JOHNSTON and KRIT CARS.**Telephones : HOLBORN 4950, 1791.****FOR EFFICIENCY
& RELIABILITY IN****AERO-RADIATORS**Send your enquiries to
the well-known radiator
experts**The Motor Radiator Mfg. Co.,****GREET, BIRMINGHAM.**Telegrams :
NERLEAK, BIRMINGHAM.Telephone :
455 VICTORIA, BIRMINGHAM.**KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.**

The Evil Fortune of the Royal Flying Corps.

The two fatal accidents, involving the deaths of two officers and two men of the Royal Flying Corps (Military Wing) last week, following on so many others recently, will doubtless cause many to think that we may buy our conquest of the air too dearly. Nevertheless, the fight must go on, and, fortunately, there are plenty of young men willing and eager to take the places of those who fall.

It is not the custom in this paper to indulge in heroics, or to give way to sentiment; still, on this occasion I may perhaps be permitted to tender to the officers and men of the Royal Flying Corps, on behalf of all those interested in aviation in this country, our deep sympathy in the losses they have sustained, and to assure them that we value very highly the brave work they are doing. All ranks in the R.F.C. who fly are, while flying, practically on active service, and are as much entitled to the respect and admiration of the people of this country as if they were in the field facing an enemy.

From time to time in this paper certain things have been said which have caused annoyance to the personnel of the Flying Corps. I therefore beg them to believe that behind all criticisms of men, machines and methods is one main idea, the hope that we may in time produce better and safer machines so that while the act of flying may become less dangerous, the R.F.C. itself, efficient as it is, may become more effective. Only through alteration can progress be made, and I should be failing in my duty if I pretended that all was well and ceased to criticise when so much still remains to be done, and human life leaves one so little time in which to do it.

The Farnborough Collision.

The collision at Farnborough on Tuesday last, which cost the lives of Captain Anderson and Air-Mechanic Carter, was apparently one of those accidents which were bound to occur sooner or later, and was, so far as one can gather, nobody's fault in particular. We have been singularly fortunate in this respect so far in this country, for this is our first, and there have been a number of collisions abroad, though it must be confessed that our immunity has been due more to luck than judgment. There are supposed to be certain rules of the air, but aviators seem to pay little attention to them—I have seen pilots meeting head on pass to the left and also to the right. In the case of machines crossing at right angles there seem to be no rules as to which is to go behind the other. Many civilian pilots fly as if there was no one in the air except themselves, and one frequently finds that the more skilful the pilot the less he allows for the fact that a less skilful pilot whom he may be passing may turn or rise or descend in such a way that even his own skill may not avert a smash.

Even if a pilot can see clearly in front of him, as in a propeller biplane, he is not safe from another in a faster tractor machine, either monoplane or biplane, descending onto him from behind, and facility of seeing out of a machine has not been assisted by the tendency in this country to produce more and more efficient tractor biplanes. In the very small, highly efficient "scout" class of biplane the pilot has a very limited view indeed, as regards objects close to him; in fact, the view obtained is rather like that seen when looking between the slats of a Venetian blind. This restricted view, in conjunction with the very high speeds attained, make it imperative that pilots should exercise the very greatest care when flying high-speed tractors.

Some two years or more ago, the late Mr. Fisher, on the Flanders monoplane, turned with one wing overhanging a Bristol school biplane, on which Colonel (then Captain) Sykes was flying, and not more than twelve feet above it, and neither pilot saw the other, so that even a propeller biplane is no guarantee of safety, especially if the pilot is busy looking ahead.

During the Military Aeroplane Competition on Salisbury Plain I was flying with M. Verrier on a Maurice Farman, and as we came in parallel with the sheds I noticed one of the Hanriots coming across us at right angles from the left over the sheds and just so high that the pilot could not see us unless he dipped the nose of the machine. M. Verrier was busy watching the machines in front of the sheds, and went

straight on. I drew his attention to the Hanriot, whereupon he naturally did the right thing and made a sharp, steeply banked turn to the left, circling out of the ground and back again. As we turned the Hanriot was obscured from view by the lower right wing as it banked up, and as the turn progressed it was hidden by the upper plane, so that I did not catch sight of it again till we had completed a circle and were coming back in front of the sheds again, when I saw it, between the upper and lower wing tips, far away to the right. Now it would have been quite possible for the Hanriot to have turned to its right and to have descended on top of us without the pilot seeing us, owing to our being blotted out by his own wings and engine cowl, and we should certainly not have seen him.

It seems, from all accounts of the Farnborough accident, that Mr. Wilson, who was returning from Brooklands with Air-Mechanic Carter on a Sopwith biplane, was descending at the same time as Captain Anderson on another Sopwith, and was slightly above him, both making for the landing ground on Farnborough Common.

This landing ground is one of the worst possible, being surrounded by trees and scrub, and impossible to reach head to wind, when the wind is in certain directions. Unfortunately it is the only ground for the purpose in the Aldershot district, Laffans' Plain, which is much superior, being required for the manoeuvring of troops, and therefore not available at all times for aeroplanes. When the old Air Battalion was formed protests were raised in this paper against its being stationed at Farnborough on account of the dangerous character of the country round about, but an officer in a responsible position courteously explained that it was necessary for the air corps to have its headquarters in the Aldershot Command, as it was to be an integral part of the Expeditionary Force. It is therefore unavoidable that the landing ground should be where and as it is, but its topography makes such accidents very much more likely than they would be on Salisbury Plain.

In this instance the machines circled round, obviously without the pilots seeing one another, and finally met when going in opposite directions. Captain Anderson's machine fell tail first, but Mr. Wilson's, being apparently less badly damaged, spun round its injured wing and finally fell upside down. It is quite possible that had the accident occurred over one of the woods close by all three might have been saved. As it was, the machines fell on the golf links, Captain Anderson and Mr. Wilson's passenger Carter were killed outright, but Mr. Wilson escaped with a broken jaw.

Owing to an error in the early reports of the accident it appeared last week that Carter was with Captain Anderson, and that Mr. Wilson was flying a B.E.

The chief lesson of the accident seems to be that we must somehow evolve a machine which gives either the pilot or the passenger a clear view below and above him behind and in front. If we are to continue using tractor biplanes of the present type, the only apparent way of doing this is to place the passenger much higher up, and with less engine and cowl in front of him, so that he can see over the edge of the front plane, and to put the pilot's seat so far back that he can see above the rear edge of the upper plane, in case anything should be approaching him from a higher altitude. Even this would not get over the trouble of not being able to see below when flying without a passenger.

One method of improving things is to seat the pilot far back along the fuselage, as is customary in many German machines, but this makes the machine heavy on her fore-and-aft controls. It may, however, be worth doing in really big machines, where the pilot's weight is a small proportion of the total.

In existing machines it might be well worth while to experiment with some form of periscope, or some arrangement of reflectors which would show a pilot who was circling round to land whether the air was clear above and below him. This last seems the most workable idea for immediate use, for if successful it could be adopted on all existing machines, whereas anything else means radical alteration in design, which entails years of waiting before anything can be done.

CRITCHETT WELDING & ENGINEERING CO., WELDING & BRAZING .. SPECIALISTS ..

Aluminium Welding Guaranteed.

Wire, Write or Phone

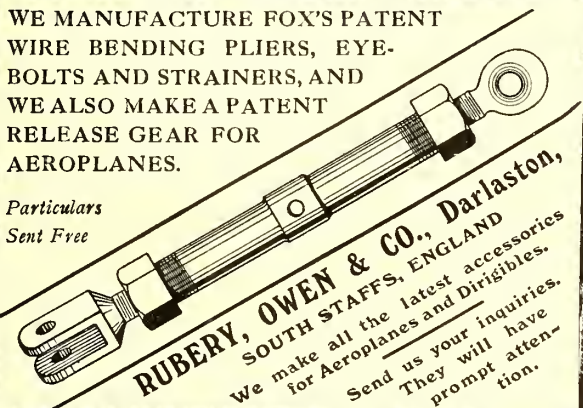
Tele. Address: Flexicable, Watloo, London. Phone: 2424 City.

Postal Address:

80, BELVEDERE ROAD, LAMBETH, S.E.

WE MANUFACTURE FOX'S PATENT
WIRE BENDING PLIERS, EYE-
BOLTS AND STRAINERS, AND
WE ALSO MAKE A PATENT
RELEASE GEAR FOR
AEROPLANES.

Particulars
Sent Free



RUBERY, OWEN & CO., Darlaston,
SOUTH STAFFS, ENGLAND
We make all the latest accessories
for Aeroplanes and Dirigibles.
Send us your inquiries.
They will have
prompt atten-
tion.

"EMAILLITE"

THE PREMIER DOPE
British Manufactured

"AS TIGHT AS A DRUM."

As adopted by H.M. Government and
all the leading Manufacturers.

The **BRITISH EMAILLITE Co., Ltd.**
30 Regent Street, Piccadilly, S.W.
Phone, 280 Gerrard. Wire, Santochimo, London



DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

BOOKS TO READ.

Flying: Some Personal Experiences.
By GUSTAV HAMEL and C. C. TURNER,
12/6.

**Animal Flight: A Record of Ob-
servations.** By DR. E. H. HANKIN. 12/6.

The Mechanics of the Aeroplane.
By DUCHESNE. 7/6.

May be obtained from THE AEROPLANE, 166 Piccadilly, W.

IMPORTANT TO AVIATORS.



EAGLE INSURANCE COMPANY,

ESTABLISHED 1807.

79, Pall Mall, London, S.W.

The directors are now prepared
to quote terms for Life
Insurance including

RISK OF DEATH FROM AVIATION.

For full particulars apply—

F. BERTRAM GALER, B.A., F.I.A.

Manager and Actuary.

TWO IMPORTANT BOOKS ON AVIATION

Just Published. 180 Pages, with Diagrams. Crown 8vo. 3s. 6d. net.

THE AVIATION POCKET BOOK FOR 1914

Containing amongst other valuable information, the Theory
and Design of the Aeroplane, Structural Material,
Examples of Actual Machines, &c., &c.

By R. BORLASE MATTHEWS, A.M.I.C.E., M.I.E.E.
Member of the Royal Aero Club.

CONTENTS: Air Pressure and Resistance—Aeroplane Theory and
Design—Structural Materials—Engines—Examples of Actual Machines
—Piloting and Aerial Navigation—Meteorological Data—Military Infor-
mation and Signalling—Aero Clubs and Societies—Glossary of Terms
used in Flying.

EXTRACT FROM REVIEWS: "... a large amount of information is
included in these various chapters and the diagrams and curves used to
illustrate the text are some of the plainest and most easily understood that
we have ever seen in a book of this class ... generally speaking the data
given would appear just such as are not contained in other books of
reference."—ENGINEER.

"The Book is one which we are sure many will find useful and
convenient."—ENGINEERING.

Popular Edition. 294 Pages. 95 Illustrations and Dimensioned
Drawings. Demy 8vo, cloth. 5s. net.

THE ART OF AVIATION

A Handbook upon Aeroplanes and their Engines, with
Notes upon Propellers.

By R. W. A. BREWER, A.M.I.C.E., M.I.M.E., &c.

"... Those who for the present have no intention of trusting them-
selves on the wings of an aeroplane will still find the book of value; those
who already are engrossed in the study of aeronautics cannot afford to
ignore it."—ENGINEERING.

Complete List, Post Free, from

London: CROSBY LOCKWOOD & SON

7, Stationer's Hall Court, E.C., & 5, Broadway,
Westminster, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Northallerton Accident.

The accident at Northallerton on Friday, in which Lieut. Empson and Air-Mechanic Cudmore were killed, was only one of several accidents to pilots of No. 2 Squadron flying from Seaton Carew to York on the same day, any one of which might have had similar results, but for sheer luck. Briefly, the pilots were flying in a fog and had to land. Some machines were smashed without harm to pilot or passengers. This one touched ground, ran into a hedge, turned a somersault, and fell upside down, killing the crew.

Information is lacking as to how the squadron came to be flying in a fog. There are three possibilities. First, they may have started in clear weather and have run into a fog-bank. In this case they should have turned back, or have landed at once, instead of carrying on in the hopes of getting clear of it. Secondly, they may have started in a mist expecting it would clear as the day grew, and hoping to arrive before the sun grew strong enough to produce heat-gusts. In this case someone is definitely to blame for allowing them to start. Thirdly—and most likely, one hopes—they may have started in clear weather and when high up they may have flown over a ground fog without noticing it, and have been compelled to come down owing to engine trouble, or because they thought they were near their destination. In such case an accident of some sort was unavoidable.

There remains the question of why anyone could be killed by a somersault on a tractor biplane, especially as the evidence shows that it had already touched the ground and was presumably slowing down to land. It is possible that Mr. Empson on landing saw the hedge some 20 yards ahead and opened out his engine to try and lift over it, catching his chassis in it much as Mr. Roupell did with his Henri Farman last year when he was so severely injured. This would account for the speed of the smash being greater than one would otherwise expect.

One reads that both men were crushed by the engine, or by the machine, which seems almost impossible till one remembers that the body work of a B.E. is merely a light superstructure built onto a shallow fuselage. There is no top rail above the pilot's seat as in ordinary tractor biplanes and mono-

planes. In many somersaults in such machines the pilot has escaped by simply ducking his head inside the fuselage. I remember Mr. Morison turning over at fully 90 miles an hour at Brooklands in a Morane-Borel, and crawling out unhurt. The body-work of the "Mark B.E.2" is cut away with the intention of giving pilot and passenger a better view than they would get if they had to crane over a high-sided fuselage with a top rail. This body work is quite light, and if the interplane struts gave way, as they would in a bad somersault, it would probably squash under the weight. One may contrast with this the escape of Mr. Wilson after a fall probably quite as bad in the Sopwith at Farnborough. I do not state this definitely as the cause of the deaths. I merely offer the suggestion to the military authorities as a point of design worthy of investigation.

The real lessons to be learnt are as follows. With adequate air brakes the alighting speed of so fast a machine would undoubtedly have been such as to make a fatal smash impossible. With a claw land-brake, such as many German makers fit, the impact with the hedge might conceivably have been reduced very materially—assuming that Mr. Empson did not try to lift over it. If he did make the attempt, he did the wrong thing, and the only point to remember is, that if a pilot resolves to smash his machine and save his passenger and himself he can land almost anywhere, simply by touching with one wing tip and ruddering hard over so that he spins round on the wing. In a properly constructed machine everything will break up except the central portion of the fuselage.—C. G. G.

Lieut. Ernest Vincent Anderson, of the Black Watch (42nd Regt.), was born at Adelaide, S. Australia, on June 4th, 1887. He took his certificate, No. 247, on a Bristol biplane at Brooklands on July 16th, 1912. He was appointed to the Royal Flying Corps on October 28th, 1912, and promoted to Flight Commander (temporary captain) with seniority of January 1st, 1914.

Lieut. John Empson, of the 4th Royal Fusiliers, Aldershot, was born in Yorkshire on February 22nd, 1891. He took his certificate on a Bristol biplane at Brooklands on January 7th, 1913. He was appointed to the Royal Flying Corps on December 17th, 1913.

The Week's Work.

Weather Report for Week Ending May 17th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Windy	Good	Windy	Good	Good	Fair	Fine
Calshot ...	Windy	Fair	Windy	Fine	Fine	Fine	Fine
Eastchurch ...	Fine	Fine	Fine	Fine	Fine	Fine	Fine
Hendon ...	Gale	Fair	Fair	Good	Fair	Windy	Windy
Liverpool (Waterloo) ...	Gale	Gale	Gale	Fine	Fine	Fine	Calm
Montrose ...	—	—	—	—	—	—	—

Flying at Hendon.

The weather was quite satisfactory on Thursday, although there was some wind. Mr. Goodden flew excellently on a brand new Hendon-built Morane-Saulnier, 80-h.p. Gnome, which, as it has the same sized wings as the 60-h.p. machine, is very fast. Mr. Carr carried numerous passengers on the char-à-bancs, M. Desoutter flew Lord Edward Grosvenor's Blériot, making a wide circuit around the neighbouring country, and various pilots performed on boxkites.

Once more a strong wind made racing impossible on Saturday, but nevertheless some good flying was done. Mr. Carr was first out on "Lizzie," who has been practically rebuilt and fitted with a cowl so that she looks more like a Morane with a roof than ever. The work has been beautifully done and she is quite the most efficient 50-h.p. biplane that has yet been seen. Mr. Noel afterwards flew the 80-h.p. Blériot, carrying a passenger, and finishing up with a pirouette on one wing-tip, without however doing any damage to the machine. M. Marcel Desoutter made several flights on the 50-h.p. Blériot, finally going off to Brooklands. Mr. J. L. Hall also made several excellent flights on his 50-h.p. Avro, the behaviour of the machine having considerably improved. Mr. Ian Davis exercised his 50-h.p. Avro, now fitted up with a

fine assortment of instruments which apparently do everything but fly the machine. The installation of a pair of loaded broomsticks projecting forward from the elevator flaps with the idea of balancing them, inspires one with awe. Mr. Davis might note that it is not the general practice at Hendon for an aviator to make unbanked turns at low altitudes over the cheaper enclosures.

Mr. Goodden made a long flight. Mr. Carr made two or three loops on "Lizzie," and took turns with Mr. Noel at taking numerous passengers on the 80-h.p. Blériot.

On Sunday there was the usual fine display, Mr. Grahame-White and Mr. Carr each flew the char-à-bancs, Mr. Strange, Mr. Lillywhite and Mr. Norris flew box-kites, Mr. Noel the Blériot, and Mr. Goodden the Morane. A particularly fine high flight was made late in the evening by M. Baumann on Mr. Ding's Handley Page biplane (100 Anzani with silencer), which lifts astonishingly and in a stillness which is almost chilling, after the usual roar of open exhausts. Mr. Ian Davis went out across country and deteriorated his Avro on some neighbouring golf links. The Statax Caudron came out of its shed to be photographed—a nice little machine and a very neat engine, but the fixing between the two makes one apprehensive of evil.

Flying at Brooklands.

Monday was the beginning of a good week at Brooklands. Lieut. Rabagliati, a Bristol pupil, took his brevet at 450 ft. Lieut. Collet, R.M.A., went to Gosport on the D.F.W. with a large extra petrol tank fitted in the passenger seat. M. Verrier arrived from Farnborough with a passenger and returned. Later, Lieut. Robin Grey, R.F.C., arrived on Sopwith No. 319 with a passenger, Lieut. Granville on H. Farman 339, and Lieut. Wilson on Avro (50-h.p.) No. 290 also arrived, and later all three returned to Farnborough. Mr. Pixton and Mr. Mahl were out on the 80-h.p. dual control Sopwith, and

later Mr. Mahl did straights alone. Mr. Barnwell and a passenger went to Chertsey Bridge on the Vickers gun-carrier, returning at 3,500 feet.

On Tuesday Mr. Mahl was doing straights on the 80-h.p. Sopwith. Mr. Barnwell was taking passengers on the Vickers gun-carrier, and No. 4 Sopwith "Scout" arrived.

In the afternoon Lieut. Wilson arrived with Air Mechanic Carter on Sopwith No. 329, and later returned to Farnborough, where the fatal accident occurred. Mr. Pixton was out on the Sopwith "Scout," and Mr. Mahl on the 80 two-seater. Mr. B. C. Hucks came over to test his strengthened Blériot. He made six loops and a splendid upside-down flight of about 30 seconds. He reported that strengthening had slightly increased the weight of the tail, which made it less good for looping, but better for upside-down flying.

On Wednesday Mr. Mahl was out for 20 minutes and climbed to 2,500 ft. Mr. Pixton was flying the Sopwith "Scout," No. 4, and later went to Farnborough. Mr. Barnwell was testing the 70-h.p. and 50-h.p. Vickers School biplanes.

On Thursday two Vickers pupils, Messrs. Peter Liddell and Reginald Max Murray, took their brevets, climbing to 600 ft. and 3,200 ft. respectively, both in excellent style. Mr. Mahl took an excellent brevet on the 80 Sopwith, doing his height test at 1,000 ft. He is, one believes, the first pilot to take his ticket on an 80-h.p. machine. Mr. Barnwell was testing the 50-h.p. Vickers School biplane. Mr. Mahl did two flights on the 80-h.p. Sopwith. Mr. Gustav Hamel arrived from Winchester on his 80-h.p. Morane, and gave a fine exhibition of loops and tail slides.

On Friday, Lieut. Lawrence, R.F.C., arrived with a passenger on B.E. 239, and returned to Farnborough. Mr. Mahl was taking passengers on the 80-h.p. Sopwith, including Mr. Jack Alcock, and, at one time, taking two passengers, which strikes one as a trifle soon for a new pilot. In the afternoon, Mr. Busteed arrived from Farnborough on the Bristol "Scout," having done a speed variation of from under 40 m.p.h. to 97½ m.p.h. Mr. Gustav Hamel again gave us a couple of loops and a tail slide, afterwards taking Lady Juliet Duff as passenger.

On Saturday afternoon Mr. Hamel took a passenger to Reading. Mr. Barnwell took two passengers on the Vickers gun-carrier. M. Desoutter arrived on Lord Edward Grosvenor's 50-h.p. Blériot. Mr. Busteed gave a good exhibition on the Bristol "Scout."

On Sunday, Mr. Barnwell was out on the 70-h.p. Vickers biplane, taking several passengers, including two Brooklands free passengers. Mr. Busteed gave two exhibitions on the Bristol "Scout." Mr. R. Skean gave an exhibition on Lord Edward Grosvenor's 50-h.p. Blériot.

Flying in the West Midlands.

Early last week Mr. Orr Paterson, formerly a pupil at the Vickers School, flew the Flanders biplane, 70-h.p. Isaacson engine, from Stratford-on-Avon to Worcester. From there he flew along the Severn as it was impossible to cross the hills to Shrewsbury owing to the lowness of the clouds, also there was no compass on the machine, and the only map Mr. Paterson could inspect was one at a local hotel at Stratford. The flight was brought to a stop at Buildwas, near Ironbridge by two plugs oiling up. The propeller and a drift wire were broken while landing down wind. The journey occupied an hour and a quarter. Mr. Paterson speaks most highly of the Isaacson engine and of the machine.

Flying in the North.

Mr. Harold Blackburn writes:—

"Whilst testing a new 80 Gnome Avro at a field near Bellevue, Manchester, on Friday afternoon, I lost sight of the field containing A. V. and H. V. Roe and their men, so not knowing the locality, and having the tanks all full, I decided to be hung for a sheep, and pointed for Harrogate, trusting to fly out of the haze into fine weather. After being in the air an hour without sighting anything solid, I nosed down gingerly for a long time and found what I concluded to be the tops of some of the Pennines. This I didn't like after an hour's travelling, and the compass must have been all wrong having been placed on without setting or adjustments from another position on another machine.

"Climbing up again I flew on, setting my direction by an occasional glimpse of the sun. Coming out of the haze near to Pleasley, Derbyshire, I landed there after two hours' flying with a hot cylinder, which had given trouble for the last 30 minutes."

Flying at Shoreham.

All the pupils of the Shoreham and Pashley Schools have been out practically every morning and evening. At the former Mr. Cannon took half of his brevet.

Mr. Eric Pashley was up to 2,500 ft. on Wednesday last, the first flight he has made since he broke his leg. On the same day, Mr. Cecil Pashley, accompanied by his brother, flew to Worthing. After dropping his passenger he returned. Mr. Eric Pashley made the same journey in a semi gale on Saturday with a passenger.

The exhibitions of looping, which were to have been given, failed to materialise, owing to Mr. Roberts, Mr. Thornely's manager, unexpectedly making arrangements for him to give exhibitions in Germany.—E. L. D.

Attention has been called to a statement in the last issue of *THE AEROPLANE* which might be read as implying that the proprietors of this Aerodrome were short of money. This is quite contrary to the truth, or to what the local correspondent intended to convey, and perhaps one ought to apologise to the proprietors, but the fact that, as stated, new buildings are being put up, which are being let as fast as they are built, proves how forced such a construction would be. What the local correspondent undoubtedly meant was, that money spent on roads would be advisable, but one finds that since then money has been spent upon them.

Flying at Eastchurch.

On Monday and Tuesday of last week Mr. Ogilvie was out on both his Wright machines.

Mr. Hamel's Busy Week.

On Wednesday of last week, Mr. Hamel, on his Morane monoplane (80-h.p. Gnome), flew from Southampton to visit Mr. Marconi at Eaglehurst on the Solent. Thence he flew to Winchester, where he gave an exhibition on the Thursday. After that, he flew to Brooklands, covering the distance in 40 minutes with a passenger. On Saturday he started after lunch from Brooklands to give an exhibition at Reading, after which he was to fly to Oxford with Lady Juliet Duff as passenger, returning to Hendon in the evening. On Saturday morning Mr. Hamel flew from Hendon to the Isle of Grain, where he took up passengers, and looped several times after lunching on the "Enchantress" with Mr. Churchill.

These long cross-country flights by Mr. Hamel, frequently with influential people as passengers, are undoubtedly doing a great deal to stir up interest in aviation among the people who really matter. One regrets, therefore, that Mr. Hamel should have felt aggrieved by a remark in Mr. Whittaker's article last week referring to exhibition fliers as circus performers. Naturally, a Service aviator is in a different category from an exhibition flier, but, after all, a man's position is just what he is able to make it. Such pilots as Messrs. Hamel and Hucks have, of course, made their reputation as aviators apart from exhibitions, and, anyhow, those who understand and appreciate Mr. Whittaker's peculiar literary gifts, need not be offended by his method of expressing himself, any more than the editor of this paper is offended at Mr. Whittaker's reference to journalists this week, with which, in fact, he heartily concurs.

Mr. Hucks at Norwich.

On the 14th, 15th, and 16th inst., Mr. B. C. Hucks gave his third exhibition at Norwich in brilliant weather and before a large number of spectators. He was accompanied by Mr. Marcus D. Manton, who on the third day joined the ranks of the "Loopers."

On Thursday Mr. Hucks took up several passengers on the 80-h.p. Blériot. Mr. Manton on a new 50-h.p. Blériot then made a short flight alone, and at 5 p.m. Mr. Hucks looped and flew upside down after final loop for 25 seconds. On Friday a Maurice Farman from the Naval Air Station at Yarmouth added to the interest. On Saturday there was a short cross-country race between Messrs. Hucks and Manton, each on a 50-h.p. machine. Mr. Manton later made his first loop.

School Reports.

Brooklands.—At VICKERS SCHOOL: Instructors: Messrs. Barnwell, Knight, Elsdon and Webb. Pupils with instr: Maj Phillips (7), Lts Wood-Smith (10), Tennant (4). Messrs Murray (2), Parker (11), Steinbach (11), Collins (7), Wilson (11). Strts alone: Mr. Collins (1). 8's or circs alone: Maj Phillips (6), Lt Wood-Smith (4), Messrs. Murray (7), and Liddell (8), Lt Leighton (1). Certificates during week: Mr. Liddell and Mr. Murray on biplane. Machines: Three propeller biplanes.

At BRISTOL SCHOOL: Instructors: Messrs. Jullerot, Merriam and Stutt. Pupils with instr: Capt Walcot (5), Mr. Lagrange (8), Lt Mills (5), Mr. Gresley (21), Mr. Hay (4), Lt Bonham-Carter (7), Mr. Lucas (3), Mr. Parker (15), Mr. Eastwood (11), Mr. Jaques (6), Lt Richard (4). Strts alone: Capt Walcot (1), Mr. Lagrange (4), Mr. Jacques (2), Lieut. Mills (2). 8's or circs alone: Mr. Jacques (3), Lt Mills (4), Mr. Lagrange (2), Mr. Parker (2), Capt. Walcot (2). Certificates during week: Lt Rabagliati—11th May. Machines in use: Three school biplanes.

Hendon.—At GRAHAME-WHITE SCHOOL: Instructors: Messrs. Birchenough, Howarth, Lillywhite and Barrs. Pupils with instr on machine: Messrs. Cowley, Shepherd, Peck, Y. Y. Liu, Moore, P. Robinson, Winter, Howett, Palmer A. Boyesen, North, Lowe, Carpenter, Wyles. Strts or rolls alone: Major Piercy, Mr. Cowley, Mr. Moore. 8's or circs alone: Messrs. Smiles, Cowley, Major Piercy, Mr. Moore. Certificate taken: Mr. Smiles. Machines in use: School biplanes.

At CAUDRON SCHOOL.—Instructors: Messrs. W. T. Warren and René Desoutter. Pupils, strts or rolls alone: Mr. Macgregor; 8's or circs alone: Messrs. Curtis and Garvin. Certificate taken: Mr. Curtis. Machines in use: Two Caudron biplanes (35-h.p.). New machine for Statax Engine Co. being erected. Mrs. Buller made flights during week.

At HALL SCHOOL.—Instructors: Messrs. J. L. Hall, Clappen and Virgilio. Pupils with instr on machine: Miss D. Clifford (12 mins), Mr. A. Charig (12 mins). Strts or rolls alone: Mr. H. C. G. Allen (6), Miss Sophie d'Elsa (4, Penguin), Messrs. Haines, A. Charig (4, Penguin), H. Gearing (4), A. L. Brooks (6), and A. F. Arcier (6). Machines in use: Caudron, Avro biplanes, Deperdussin and Blériot monos. Mr. Clappen, who has joined school as instructor, took his brevet at Blériot School last year.

Liverpool (Waterloo).—LIVERPOOL AVIATION SCHOOL: Instructor: Mr. H. G. Melly. Pupil with instr on machine: Mr. J. Crean (strts). Strts or rolls alone: Mr. Crean, 2 hrs. Thursday. Machines in use: 2 Blériot monos. On Sunday Mr. Melly solo flights on two-seater.

The Royal Aircraft Factory's Instruments.

It is not the custom of this paper to pay attention to anything appearing in its contemporaries, but a letter from Mr. Mervyn O'Gorman, C.B., which appears in the official organ of the Royal Aero Club, makes it advisable to do so for once.

Mr. O'Gorman corrects therein a statement in last week's AEROPLANE inferring that the productions of those members of the staff of the Royal Aircraft Factory who have so skilfully produced various useful scientific instruments are not available for the use of independent aeroplane constructors. He states that the velometer is made by Elliott Bros. and G. Casella, and that the instrument for measuring gliding angles, the Ripograph, which measures rolling and other movements of an aeroplane, and the tautness-meter, are all made and sold by the Cambridge Scientific Instrument Company of Cambridge. One much regrets that such an erroneous statement should have been made and can only ascribe it to the fact that the vendors of these instruments have been somewhat backward in making public the fact that such instruments are to be purchased. Mr. O'Gorman also states that the instruments for measuring the flow of petrol or oil, as used in the engine competition, are similarly available, but he omits to mention which firm is producing them.

The fact that Mr. O'Gorman should thus generously advertise the products of an establishment other than his own is so pleasing that the least one can do is to give a wider publicity to his statement than it could otherwise obtain.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

THE CAUDRON SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best-equipped School, enquire what the Caudron pupils are doing.

THE BRITISH CAUDRON CO., LTD.,
London Aerodrome, Hendon.

VICKERS, LTD.—AVIATION SCHOOL, at Brooklands. Thoroughly graded tuition on biplanes of up-to-date construction.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

PASHLEY BROTHERS, SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.

Passenger Flights.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

HALL FLYING SCHOOL.

HALL FLYING SCHOOL.—TUITION—Flying and Constructional—given on
 A vro Biplanes.
 B lériot Monoplanes.
 C andron Biplanes.
 D eperdnssin Monoplanes.

N.B.—Only tractor machines in use.

PASSENGER FLIGHTS.

Flying exhibitions.—Write at once for full particulars gratis to HALL AVIATION Co., London Aerodrome, N.W.

LIVERPOOL AVIATION SCHOOL, Waterloo, near Liverpool.—Tuition, passenger flights, exhibitions on Blériot monoplanes (3); Mellys infallible release gear; terms and prices on application.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—THE BLACKBURN AEROPLANE COMPANY, Leeds.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, THE AEROPLANE, 166 Piccadilly, W.

EMPLOYMENT.

PILOT, good mechanic, wants berth; biplane or monoplane; brevet 1911; home or abroad.—P., 198, Moulsham Street, Chelmsford, Essex.

YOUNG clergyman (R.C.), 28, awfully keen on aviation; cannot afford tuition for pilot's certificate; would be useful chaplain to flying corps in time of war.—"Uncertificated" (Sky-pilot), Box 567, c/o THE AEROPLANE, 166, Piccadilly, W.

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—THE WILLOWS AIRCRAFT Co., LTD., Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three-ply, Laminated blocks, guaranteed perfect timber supplied for propellers.—WM. MALLINSON & SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.

"HOW to Understand Aeroplanes." By S. L. Walkden. Price 1s.; post free, 1s. 3d.—PERCIVAL MARSHALL & Co., 66, Farringdon Street, London, E.C. From Box-kite to Looping.

VOLK'S SEAPLANE STATION BRIGHTON

FREE ACCOMMODATION FOR SEAPLANES

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade

MENDINE

Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

THE "BIRMAC" MODELS.—The principal reason for the astonishing demand from all parts of the world for the famous "Birmac" models is that each model sent out receives individual attention. In order to achieve these results, each member of our staff has been taught to become proficient in making one particular part, it being the assembler's duty to see that every part is perfect. By a special arrangement with the "Daily News and Leader," the "Birmac" Aeroplane Co. gave a series of demonstrations at Olympia, and the thousands of visitors were greatly astonished at the remarkable flying of the No. 1 "Birmac," which only costs 2s. 11d. and 3d. postage. Master Antony Asquith, who purchased his second "Birmac" (a tractor monoplane, 5s. 11d.), said, "Your models certainly do fly beautifully." Coming from such an adept in the art, need more be said? "Birmac" rubber, 1/4 inch strip, as used in the Royal Aero Club competition, 1s. 2d. per dozen yards, postage 1d.—THE BIRMAC AEROPLANE Co., West Green Road, Tottenham, N.

M.S.C. MONOPLANE, size 31 in. by 24 in., beautifully finished, price 5s. Set of parts, with drawings for constructing the above model, 2s. 6d. We stock everything for models.—MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.

T. W. K. CLARKE & CO., Hampton Wick, Middlesex, for model aeroplanes and accessories. Rotary compressed air motors fitted with 16 in. propeller, £1 1s. Finest quality strip rubber, 1/4 in. 3/16 in. wide, 1s. 4d. and 10d. doz. yds. Clarke car propellers, 2d. per inch. Send for our lists containing over 120 items. Trade supplied.

STILL HOT FAVOURITES!

J. Bonn & Co., Ltd.,

97, New Oxford Street, London, W.C.,

The Leading House for

MODEL AEROPLANE ACCESSORIES.

BONN'S CELLULOID DISC WHEELS, 2 in., 1 1/4 in. and 3/4 in., 4d., 3d. and 2 1/2d. each respectively.

BONN'S GEAR WHEELS for making Geared Motors, etc., 1 in., 1 1/8 in. and 3/4 in., 6d., 5d. and 5d. respectively.

BONN'S FABRIC, 36 in. by 18 in., 1/3; 36 in. by 36 in. 2/6; weight per sq. yd., 1/2 oz.

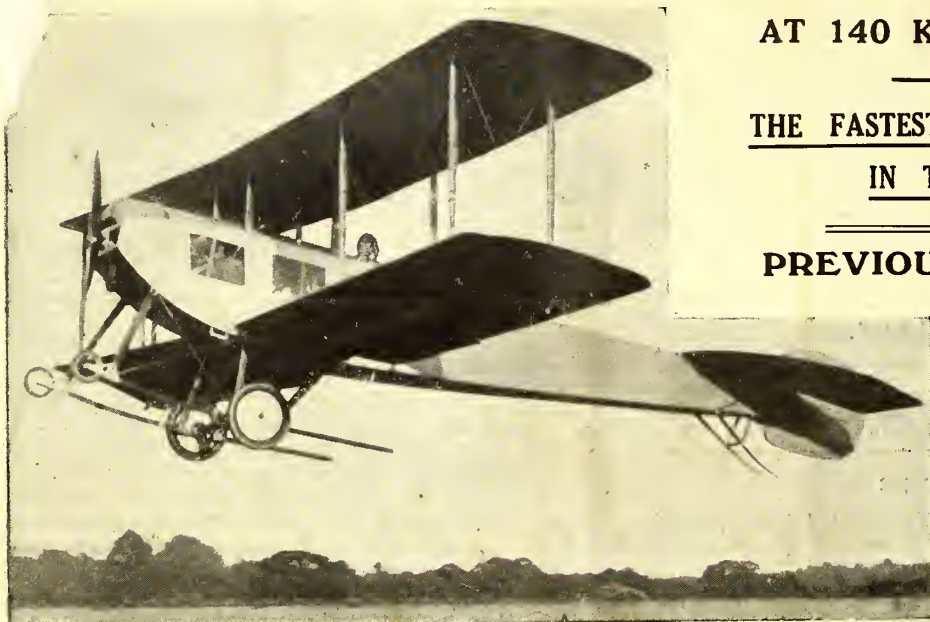
Catalogue on Application

E LATEST SOPWITH SUCCESS:—

WINNING OF THE SCHNEIDER CUP

AT 140 KMS. PER HOUR.

THE FASTEST HYDRO-AEROPLANE
IN THE WORLD.



PREVIOUS RECORDS on the preceding type of **SOPWITH BIPLANE** (80 h.p. Gnome).

British Height Record (Pilot alone) 11,450 ft.
British Height Record (Pilot and 1 Passenger) 12,900 ft.

British Height Record (Pilot and 2 Passengers) 10,600 ft.

WORLD'S Height Record (Pilot and 3 Passengers) 8,400 ft.

ALSO, British Duration Record, 8 hrs. 23 mins. with British A.B.C. Engine 40 h.p.

THE SOPWITH AVIATION CO.

(Contractors to His Majesty's Admiralty and War Office.)

Telephone: 1777 KINGSTON.

Offices and Works: KINGSTON-ON-THAMES.

Telegrams:

"SOPWITH, KINGSTON."

THE AERIAL DERBY

For the "Daily Mail" Gold Cup and "Shell" £400 Prize.

See the Start (4.15 p.m.) and Finish (about 5.0 p.m.)

AT HENDON, SAT. NEXT, MAY 23, 1914

Gates open 12 noon. LOOPING AND PASSENGER FLIGHTS, 1 to 4 p.m. (Weather permitting).

ADMISSION 1s., 2s. 6d., 5s., 10s. MOTORS 5s., 10s.

SUNDAY, MAY 24th. AERIAL DERBY SUNDAY.

Write to Dept. A. London Aerodrome Offices, 166 Piccadilly, London, W., for a free copy of the little booklet entitled "Wonderful Flying at Hendon," which contains numerous illustrations, a complete list of fixtures for 1914, and particulars of passenger flights, routes to Hendon, Season Tickets, etc., etc.

"LOOPING" AND AIR RACING
Every Thursday and Saturday, from 3.0 p.m.

To-day, Thurs. May 21, Preliminary "Aerial Derby" Speed Tests

Thurs., May 28th. MONOPLANE SPEED CONTEST
at., May 30th. Whitsun Holidays
Sun., May 31st. Eighth London Aviation Meeting
June 1st, (Bank Holiday) (12 noon) (Three Days) (Cross-Country Race for the Geisler Trophy)
Thurs., June 4th. ALTITUDE CONTEST

Special Displays and Passenger Flights every Sunday afternoon.

Passenger Flights daily from £2 2s. 0d. Admis. 6d., 1s., 2/6 Children Half-price. Motors 2/6 (Inc. chauffeur)

London Aerodrome, Hendon, N.W.

Proprietors: The Grahame-White Aviation Coy., Ltd.
HENDON. Phone—Kingsbury 120 (4 lines). Wires—"Volplane, Hyde, London."
LONDON. 166 Piccadilly, W. Phone—Mayfair 5955. Wires—"Claudigram, Piccadilly, London."

To meet the special needs of those who wish to learn more about the fascinating subject of Aviation, a series of brilliant articles entitled "The Triumph of Aviation" by Mr. John H. Ledeboer, A.F.A.S., will appear in the pages of the London Aerodrome Official Programme every week until the end of the year. The series, which will be profusely illustrated, will form a non-technical history of aviation from the very earliest days down to the present time. Copies will be sent, post free, every week, at the following reduced charges:—13 weeks, 2/-; 26 weeks, 3/9; 39 weeks, 5/6; 52 weeks, 7/-. Apply London Aerodrome Offices, 166, Piccadilly, London.

"THE AEROPLANE," MAY 28, 1914.

THE AEROPLANE



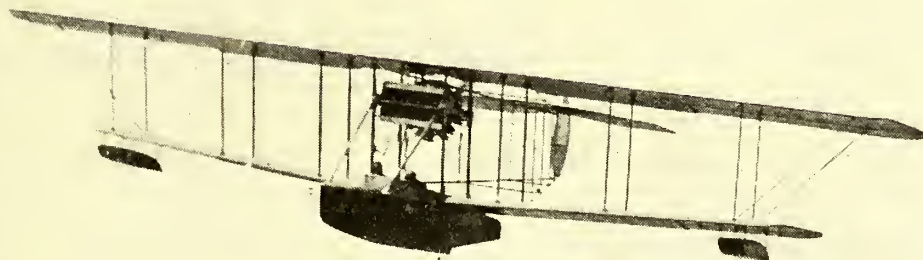
Edited by C. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

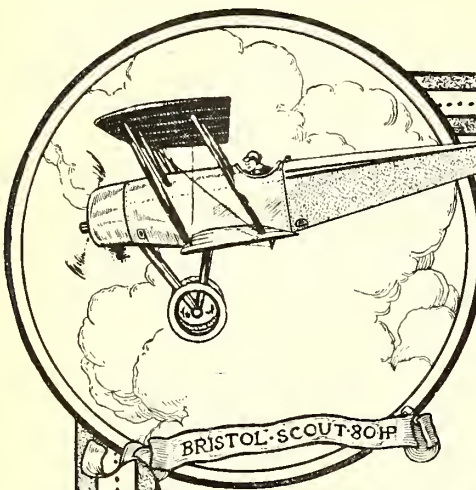
THURSDAY, MAY 28, 1914.

No. 22

THE TABLES TURNED.



The Sopwith Bat-boat (200-h.p. Salmson), bought for the German Navy, being flown by Mr. Pixton down Southampton Water. The machine flies absolutely uncontrolled, even keeping a straight line when the pilot's feet are off the rudder-bar. It is comforting to see that we are now able to sell aeroplanes abroad.



The Bristol Aeroplanes

LEARN TO FLY
AT THE GREATLY ENLARGED

“BRISTOL” SCHOOL AT BROOKLANDS

WHICH POSSESSES

The Finest Possible Equipment and adopts
the most Up-to-date Methods.

UNDER THE TUITION OF SOME OF THE LEADING
AVIATORS OF THE DAY,

RAPID AND THOROUGH TUITION IS ENSURED

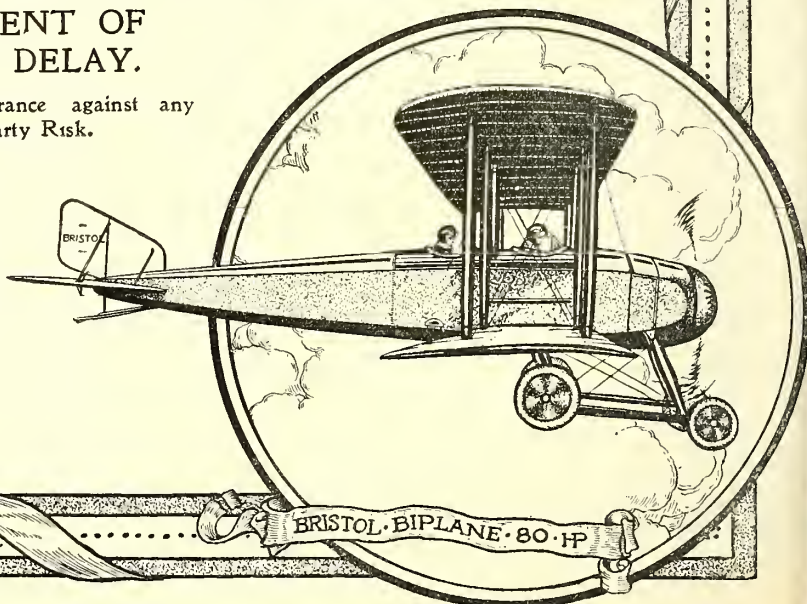
FULL COMPLEMENT OF
MACHINES—NO DELAY.

SPECIAL FEES covering insurance against any
Breakages and Third Party Risk.

Write for full information to—

**The British & Colonial
Aeroplane Co., Ltd.,**

**Filton House,
BRISTOL.**



KINDLY MENTION “THE AEROPLANE” WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all newsagents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " "	3	3	6 " " "	5	6
12 " " "	6	6	12 " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

A Word to the Press—and the "Trade."

Naturally most people concerned with the welfare of the aeroplane industry, contemptuously referred to on occasion by the "airmanship expert" of the "Times" as the "trade," are feeling a trifle sore at the undue amount of booming the so-called "safe aeroplane" produced by the Royal Aircraft Factory has received from the lay Press, with the honourable exceptions of the "Globe" and the "Observer." Even the "Pall Mall," usually very sane on matters affecting aviation, let itself be led astray—presumably in the absence of Mr. C. C. Turner—by the childlike babbling of Colonel Seely at the Aeronautical Society's dinner.

The "R.E.," which is the subject of all these eulogiums, is a good aeroplane, in fact a very good aeroplane, as was stated weeks ago in this paper, but it is nothing new or epoch-making, as Dr. Glazebrook was careful to state in his Wilbur Wright lecture. The way it was advertised in the "Times" and "Mail" was, of course, part of the policy pursued by those papers for some time past of systematically praising everything connected with the Royal Aircraft Factory and neglecting or belittling the products of the independent manufacturer.

Fortunately the aeroplane industry does not depend for its support on the readers of the "Daily Mail," or even on those of the "Times," so that there is no need for the "trade" to be particularly exercised in mind by the policy of these papers. In fact the lay Press in general is much more likely to be the loser by such a policy, for when the "trade" has really important news to impart it is the more likely to keep that news for its friends.

An excellent example of this was seen last week when the whole story of the Trans-Atlantic scheme was left in the hands of this paper, with the result that although THE AEROPLANE has to be put into type on Monday night in order to go to press on Tuesday afternoon of each week, so as to be in the hands of the wholesale newsagents on Wednesday for sale throughout the country on Thursday, it was able to appear with a full description and drawings of the machine on the same Thursday that the "Daily Mail" appeared with a somewhat meagre account of the scheme, and, moreover, this paper was able to ensure that those papers, such as the "Express" and "Pall Mall," which have supported the "trade" in the past, were able to produce a full and accurate account of the preparations. As a matter of fact, this paper was in such a position that if it had not appeared better policy to give everyone, including the "Mail," a fair chance of announcing the news on the same day, it might have pulled off what is, I believe, known in Fleet Street as a "scoop," and have appeared alone on Thursday morning with the information.

History repeats itself, and such an opportunity may easily occur again, so it may be well for the lay Press to remember that though the aeroplane industry does not at the present day offer a source of revenue from advertisements, and consequently can be condemned or contemned by any paper without bringing reproach from the advertisement manager, nevertheless, aeroplanes are making history and it may be well to keep on the right side of the "trade."

As for the influence of the lay Press on actual purchasers of aeroplanes, the effect is purely negative. By booming the entirely false statement that the R.A.F. makes the only "safe aeroplane," a few well-to-do young men may be induced not to fly, because the R.A.F. is, according to Colonel Seely, keeping the "R.E." designs (paid for by the public money which supports the N.P.L.) a deadly secret from everyone, and, therefore, "safe aeroplanes" cannot be bought from the despised "trade."

So far as the actual purchasers, the Navy and Army, are concerned, these "airmanship experts" are a laughing stock, and their influence is negligible. I am told that the recent glowing eulogies on "Safe Flying" caused more amusement among the officers of the Royal Flying Corps (Military Wing) and of the Naval Air Service than any of my humble attempts to be funny have ever done, and it is the flying officers who really decide what is to be bought. On the other hand, it has been admitted by persons possessing authority that articles which have appeared in this paper on certain practical points have had considerable influence on the design of aeroplanes for the Services, notably the articles on the question of side area and stability, with which, incidentally, the R.A.F.'s latest product more or less agrees.

By-the-way, perhaps one may here interpolate a question. If it be true, as has been stated, that the "Stable R.E." is the result of fifteen months' experimenting, how is it that such a notoriously unstable machine as the F.E.2, on which Mr. Haynes was killed on February 23rd of this year, was allowed to exist at that date? Surely very little can have been learned in the preceding twelve months on the subject of stability.

At that date, also, there was no talk of the R.E.s being notably stable, and it was not till after the articles by Mr. Sayers on stability appeared in this paper that machines of the F.E.2 type were condemned, and proper attention began to be paid all round to the effects of side area. It is curious that a regular rash of tail fins broke out, and it is interesting that the R.E. became officially a stable machine, after and not before those articles appeared.

Of course, there is nothing new in inherent stability. Mr. Weiss knew more about it in 1908 than most scientists know to-day, and if his designs had been properly produced we could have had the "safe aeroplane" three or four years ago. In 1908 Mr. Gordon England and Mr. Leake were doing glides at a height of 100 to 300 feet from the ground on really inherently stable machines—and that is nigh on six years ago. Mr. Dunne's experiments were quite as early, I believe, but, like Mr. Weiss, he has been handicapped by lack of capital, and as he says himself, his machines are now only where the Voisins were in 1909 compared with the best biplanes of to-day. Mr. Handley Page's experiments were nearly as early, and he has been the most successful, for he has actually built an inherently stable aeroplane which carried a real live Princess—true she was only of a mediatised family and not a reigning house—safely across the Channel piloted by Mr. Ding, who only took his certificate shortly before. Of course, the Press forgot to mention that it was a "stable" or "safe" aeroplane, and they called the pilot Mr. Bing, but what is that com-

pared with having one's machine in the "Daily Mirror" with a Princess on board? This is the true measure of success.

It is, perhaps, a trifle unfortunate that the writers in the "Globe" and "Observer" should have chosen to quote the Dunne and the Cedric Lee machines as examples of immediately available stable aeroplanes against the "R.E.," for the Dunne is, as I have said, still undeveloped, and the Cedric Lee has never shown any public evidence of being stable in any direction, so that neither can, at the moment, be compared with the "R.E."

Doubtless I shall be told that one can obtain inherent stability without using "weird wings." One can, but I am by no means sure that "weird wings" minus a tail may not ultimately prove more efficient than normally shaped wings plus a tail. It is noticeable that a bird only uses his tail as an air brake, and not as an elevator or even as a rudder, and I am quite prepared to believe that our beautiful fuselage machines are all wrong. Please note these remarks. It may be interesting to refer to them in years to come.

Fulfilled Prophecies.

Talking of referring back reminds me that the "trade" really deserves very little sympathy over this "R.E." affair, because they had fair warning it was coming, and yet paid no attention to those warnings. I am beginning to understand the feelings of Jeremiah, and Isaiah, and the gentleman whose name one only hears in these days in connection with sparking plugs and other matters electrical—Micah—who used to tell the Israelites just what must happen if they "kept on keeping on" so, and who used to have the remains of burnt offerings thrown at them for their pains. And I can understand how Elijah felt quite sorry for the children who were eaten by bears for mocking at him, and yet felt they deserved it. If the "trade" will not listen to prophets it cannot squeal if it is eaten by bears (or boors) from the forest at Farnborough.

Somewhere in the Summer of 1911, when the early Avro biplanes appeared, this paper said that they were the type of the future. A year later, when people were trying to build monoplanes and "pusher" biplanes, the "B.E.2" arrived and practically wiped out all the "trade's" previous efforts, except the Avro, and, unfortunately, at that time the Avro firm could not afford to buy 80 Gnoms and beat the B.E., as they did later on.

On May 8th, 1913, THE AEROPLANE stated that the Army must buy fast single-seater scouts, and the Navy must buy big powerful seaplanes. The Sopwith Company was then only just

starting business in earnest, but they foresaw the same course of events, and to-day they are as busy as they can be on these two types. The Short Brothers and J. Samuel White and Co.—the latter firm only just starting aeroplane work at that time—both chose to concentrate on big seaplanes, and they are both unable to turn out machines fast enough.

On September 18th, 1913—eight months ago—the following words appeared:—"The Services will need thousands of pilots before many years have passed. Aeroplanes will in time become ordinary vehicles of transport. Pilots will be needed in thousands. . . . We are not going to find men of the quality of our officer-pilots . . . to fill these jobs, so we shall have to depend more on the machines and less on the men. Therefore, let us pay more attention to inherent stability. In this direction lies safety in the air, and the ultimate financial stability of the industry, which is just as important for the country as is the stability of the machines themselves."

Knowing the English race, this was not considered sufficient, so on January 8th of this year, five months ago, the warning was repeated still more strongly, thus:—"It is rumoured by those who ought to know, that the Staff of the Royal Aircraft Factory are already at work on the designs, if not on the construction, of an inherently stable yet controllable aeroplane. The more intelligent of them realise that having produced the last word in tractor biplanes by goading manufacturers to beat the 'B.E.,' the true road to progress is towards inherent stability."—For fear of misunderstanding it may be well to state that this means that the R.A.F. has produced the last word in tractor biplanes indirectly, the machines being those various aeroplanes which have beaten the "B.E." power for power.

The article winds up by saying: "Therefore, let the aeroplane trade take notice that, unless they bestir themselves, the same thing will happen that happened at the Military Aeroplane Competition in 1912; a new and practically unknown type of machine, built by the Royal Aircraft Factory, will suddenly appear and proceed to wipe out all the manufacturers' machines. If it does, it will serve them right, for after all this they cannot say they have not been warned."

Now the "R.E." has appeared, and honestly I do not know of anything to beat its performances at the moment. Other machines beat it power for power, but they are mostly 80-h.p. machines against the "R.E.'s" 120 h.p. Probably many of them are better built, and far better finished, but they do not go as fast nor as far nor as high. Also, they are not "fool-proof," at least I do not know of any which Colonel Seely could control, either by pulling a string attached to the rudder-



A BRITISH PILOT IN GERMANY.—Mr. J. B. Thornely of Cambridge starting for a "looping" flight at Münster on the Farman (80-h.p. Gnome) which was rebuilt for the purpose by the Eastbourne Aviation Co., Ltd.



LEARN TO FLY



AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS LIMITED,

Aviation Department, Vickers House,
Broadway, London, S.W.

HANDLEY PAGE AEROPLANES.

The ease with which **HANDLEY PAGE** aeroplanes may
be controlled is evidenced by the record of the past week—

■ ■ ■ ■ ■ ■ ■ ■

APRIL 28th.—Mr. W. Rowland Ding takes his pilot's certificate.

MAY 21st.—100 h.p. Handley Page biplane, piloted by Mr. Rowland Ding, flies
to Calais via Eastbourne and returns to Hendon.

MAY 26th.—100 h.p. Handley Page biplane, piloted by Mr. Rowland Ding, flies
from Hendon to Bath.

HANDLEY PAGE, LTD.

Contractors to the War Office.
72, VICTORIA STREET, S.W.

Telegrams: "HYDROPHID" LONDON.
Telephone: 2574 VICTORIA.

Works:
Cricklewood.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

bar, which is the way he controlled the "R.E.," or by any other method, and he may be taken as a fair test case.

And, mark you, the "R.E.s" are not to be built by contractors. they are to be the R.A.F.'s own particular job. That is why there are over a thousand men at work at the Factory, many of them busy making tables and chairs, and french-polishing the underneath side of drawing-boards, and so forth, simply marking time till the War Office gives the word to go ahead and build "R.E.s" by the hundred. And then what use will anyone have for B.E.'s?

Meantime, all the good contractors are busy making "B.E.2's," an obsolete type of machine with an antiquated type of engine. I wonder what they will do when no more "B.E.'s" are wanted, and the R.A.F. has all the orders for "R.E.'s."

The wise thing for them to do under the circumstances would be to set to work to build a bigger and better and more stable machine than the "R.E.," for no one has yet produced a decent fighting machine as a reply to the fast "Reconnaissance" type. The fighting machine should be, for choice, of a design with two separate engines, for the good reasons so often put forward by General Henderson. Also, they should experiment seriously with air-brakes and land brakes.

Contemporaneous Accuracy.

Last week it was stated that it is not the custom of this paper to pay any attention to its contemporaries, but owing to a certain article in the Aero Club's official organ one is obliged to refer to some remarks which appear under the heading "Nailed to the Counter." This heading is, of course, a portion of the phrase so frequent in the mouths of political speakers which relates to "nailing a lie to the counter," and one may therefore deduce that our contemporary charges this paper, and those few writers who have supported it, such as Mr. C. C. Turner, with deliberate perversion of fact. Our contemporary refers to "statements that have been made from time to time that Government officials, particularly those of the Royal Aircraft Factory, have persistently stood in the way of the development of private enterprise." Apparently the excuse for this charge is that Mr. Sopwith, speaking at the Schneider Cup lunch, gave much of the credit for his victory to the help received from the Authorities. As a matter of fact it seemed quite clear to any normal comprehension that Mr. Sopwith ascribed the production of his high speed "tabloid" scouts to the demands of the Department of Military Aeronautics for a fast single-seater with a big speed range, whereas our contemporary apparently affects to believe that Mr. Sopwith wished to acknowledge that he had received material help from the R.A.F.; at any rate that is the impression given when one tries to read any particular meaning into the somewhat amorphous style of the article.

It is necessary to draw a very clear distinction between the requirements of the military authorities, which have unquestionably stimulated the production of highly efficient aeroplanes, and the actions of the officials of the Royal Aircraft Factory, which not only tended to hinder private enterprise but have obviously been directed towards foisting on the Army aeroplanes of their own design which have of late proved only too effectively to be undesirable for military work, as they have been stated to be over and over again in this paper. The numerous alterations in the designs of the R.A.F. prove how correct were the criticisms.

That the charges against the staff of the Royal Aircraft Factory have not been supported by "concrete proof" is due to the very simple reason that an aeroplane manufacturer who was known to supply the material on which these charges were based would have had his products promptly condemned by the officials, and any employee of the R.A.F., even distantly related to anyone giving such information, would have been instantly dismissed.

At the present moment the situation is entirely different. Instead of manufacturers' machines being examined and rejected by a rival manufacturer, they are now submitted to an absolutely impartial inspection by the officers of the Aero-

Being in a prophetic mood, let me hazard a guess that the fighting machine to beat off the "R.E." will be a propeller-driven biplane having a fuselage with an engine of about 120-h.p. on each side of it, each engine driving a separate propeller, more or less like a Sikorsky, and each engine capable alone of flying the machine. It will be inherently stable. It will have proper brakes.

I know personally of three men, none of whom is doing designing work at present, who could design such a machine and have it in the air in six months from now, given proper workshop facilities, so surely the combined brains of the designing staff of any one of our big firms should be able to beat them on time if nothing else. I only hope they will, for that is the only way in which the "trade" can hit back.

Meantime, looking at it from here, and viewing the clever use which has been made of that mutual admiration society composed of the N.P.L., the R.A.F., the "Times" airmanship expert, the Advisory Committee on Aeronautics, and the Aeronautical Society, and the way Colonel Seely was utilised first as a gauge of "fool-proofness" and then as a mouthpiece to the lay Press, I must confess that, to quote the vernacular of the aerodrome, "The trade has been pretty badly hot-stuffed."

C. G. G.

autical Inspection Department. Anyone who is really in touch with both the R.F.C. and with the aeroplane industry appreciates how sudden and how great the improvement has been since this alteration has been made.

Every charge made in this paper has, unfortunately, been only too well justified by subsequent events, and though no one will grudge the Royal Aircraft Factory the advent of an unofficial apologist, which appears to be the latest rôle of our contemporary, it is really necessary to protest against the implied statement that some of our best aeroplanes have been produced with the aid of the authorities of the Royal Aircraft Factory.

Our contemporary's claims on behalf of the R.A.F. somehow remind me of a certain young man who, having been employed in the drawing office of the makers of a singularly successful engine, became quite annoyed with me some time ago because I refused to acknowledge him in print as the designer of that engine, though perhaps his claims had quite as much justification as those set forth for and on behalf of the Royal Aircraft Factory.—C. G. G.

The Disappearance of Mr. Hamel.

The disappearance of Mr. Hamel ever since he left Hardelot on Saturday last at 12.15 has naturally caused much anxiety to his friends, but one need not give up hope for another week or so, for he may well have been picked up by a sailing trawler, or by an outward-bound tramp without wireless. Therefore, one does not propose to write his obituary at the moment.

The amount of genuine anxiety felt about him, and the amount of interest taken in the affair by the general public show how really popular Mr. Hamel is with all classes of society. He knew it before, so it will do no harm for him to see the statement in print when, as we all hope will be the case, he returns to this country.

The astounding part of the whole business is that so experienced a flier should have attempted the Channel passage in a fog on a new machine of a type he did not know well—a monocoque Morane racer—with a type of engine—an 80 monosoupape Gnome—of which he had no experience, and, so far as one can gather, without a compass. It was obviously a case of familiarity with the Channel-crossing breeding contempt. It has long been felt by those who knew him best that if ever Mr. Hamel came to grief in an aeroplane it would not be for lack of skill, but through carelessness, or the omission of ordinary precautions, and at the moment it looks uncomfortably as if their beliefs were only too true. However, let us hope for the best.—C. G. G.

**THE BEARDMORE
AUSTRO-DAIMLER
DESIGN**

AERO ENGINE

FITTED TO LOHNER BIPLANE

—: **WINS THE**:—

SCHICHT PRIZE

OFFERED BY THE SCHICHT CO. OF AUSTRIA, TO THE WINNER
— OF A CIRCULAR FLIGHT EXTENDING OVER THREE DAYS —

— PROVING IT YET AGAIN TO BE —
THE WORLD'S FINEST AEROPLANE ENGINE

BEARDMORE AUSTRO-DAIMLER AERO ENGINE, LTD.

Selling Representatives:—

AUSTRIAN-DAIMLER MOTOR CO., LTD.

112, GREAT PORTLAND STREET, LONDON, W.

C.D.C.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,

AEROPLANE WORKS

AND

FLYING GROUNDS—

EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9, MINSTER-ON-SEA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

The Advisory Committee's Report on the Strength of Aeroplanes.

BY W. H. SAYERS.

In Report No. 96 just issued by the Advisory Committee for Aeronautics and dated January, 1914, are set forth certain considerations as to the strength of construction desirable in aeroplanes. The Committee draws attention to the fact that in relation to aeroplanes the term "factor of safety" is usually employed as meaning the ratio between the normal load (i.e., the stress due to the flying weight of the fully-loaded machine alone in still air) and the calculated breaking stress, instead of that between the maximum probable stress and the breaking stress.

The Committee propose that the ratio between the normal load and the maximum load probable under any circumstances should be called the "load factor" of the machine, and that the factor of safety should be defined as the ratio of breaking load to normal load multiplied by the load factor (i.e., the ratio of breaking load to the maximum probable load).

The term "load factor" is unfortunate as it already has a very definite and well understood meaning among practical men in certain branches of engineering—altogether different from that attached to it in this report. A consideration of the probable value of this ratio of normal load to maximum load leads the Committee to suggest 6 as a fair and 8 as an outside value of the "load factor," a figure practically identical with that already suggested in these columns as the limit of stress likely to be reached in practice.

The Committee then suggest that a factor of safety of 2 based on 6 times the normal loading should be aimed at, but suggest that this—a factor of safety of 12 stated in the usual way—is at present unattainable; and that at present a minimum of 6 should be accepted, combined with the utmost care in the selection of materials and inspection of workmanship.

Figures are given of breaking loads of certain unnamed machines showing breaking stresses varying between 3 and 7 times the normal loads. It is unfortunate that although nothing is known as to the identity of the types giving factors of safety of between 3 and 5, it is known that the one lettered G and credited with a factor of safety (by calculation) of 7, is a product of the Royal Aircraft Factory.

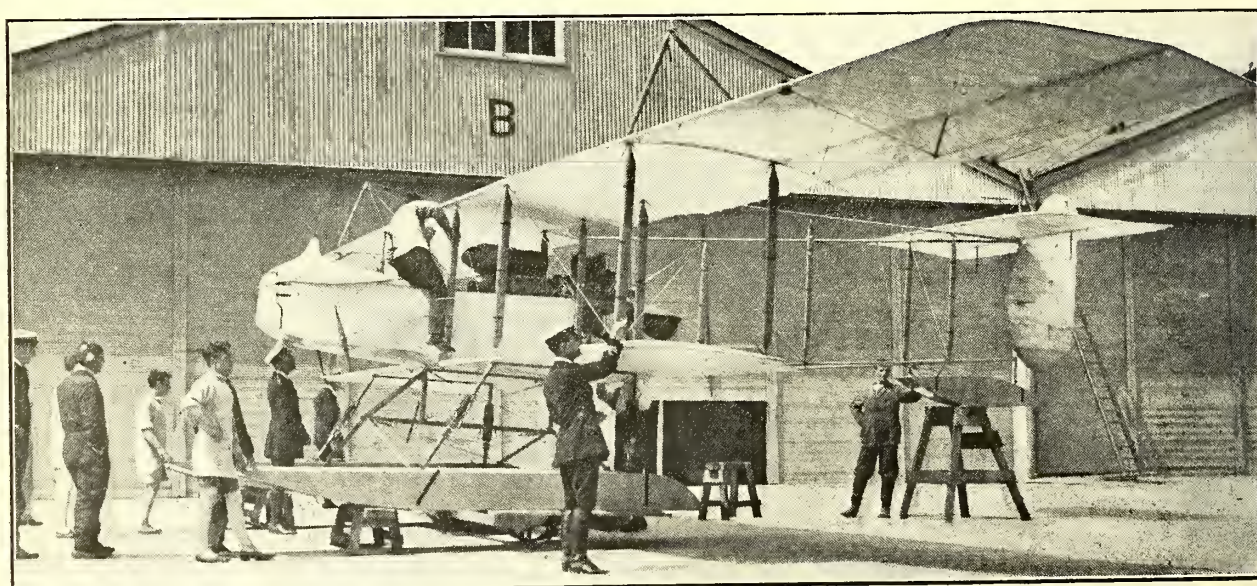
One feels fairly certain that the R.A.F. have had available for experimental purposes at least four machines built by an

independent constructor, which would have given larger factors of safety than 7—even by experiment; and the report seems in some measure to be designed to excuse breakages in the air on the grounds that it is not yet possible to design machines with a factor of safety large enough absolutely to preclude this possibility.

It appears likely that it would be quite a sound business proposition were one of our leading designers to submit a machine to the Aeronautical Inspection Department to be tested to destruction after passing flying tests, as there is no doubt that some of our manufacturers could destroy this excuse of the R.A.F. for continuing to supply unsafe machines to the Army by showing that they can build machines which not only fly as well but have also a larger factor of safety than those "calculated" for R.A.F. products.

Incidentally, one would like to know why the information contained in a report dated January, 1914, made by a public body and supposedly designed for the instruction of all those interested, should be first published in papers read before scientific societies by individuals connected with the body making the report, though neither of them claims to be personally responsible for the work on which the report is based, the report itself having been kept back for some four months.

[To this one may add that all the scientific calculation in the world is no excuse for such work as that in the B.E.s which killed Lieut. Arthur, Captain Allen, and Lieut. Burroughs, nor for designing wings without stretchers between spars and with the wood of the ribs destroyed by excessive perforation with nails, as in certain B.E.s such as that which killed Captain Downer, nor for making rudders and elevators which bend under normal flying strains, nor for fitting warp wires in such a way that they have to be renewed every six hours. The R.A.F. with all its science has a worse record of breakages in the air than any firm whose machines are used by the Army, and it is the duty of the Advisory Committee to encourage those manufacturers possessing a better record, instead of wasting public time and money on whitewashing the R.A.F. Yet we find both Mr. Lanchester and Dr. Glazebrook going out of their way to laud the products of that establishment.—C. G. G.]



A new Henri Farman at Yarmouth. Lieut. Bone, R.N., at the near wing-tip and Capt. Fawcett, R.M.L.I., at the opposite wing. It will be noted that the men have resumed the summer uniform of seaplane landing parties.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS

for the building of

HENRY & MAURICE FARMAN

Aeroplanes AND Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.

THE BRITISH CAUDRON COMPANY, LTD.

(Late the W. H. EWEN AVIATION Co., Ltd.)

British built **CAUDRON** monoplanes,
biplanes, hydro-aeroplanes (combined wheels
and floats.)

The Flying School, which is one of the
most successful in this or any country, will
be carried on as usual at The London
Aerodrome, Hendon.

**THE WORLD'S DURATION
RECORD** was raised to 16 hours,
28min., 56 secs. by M. Poulet on a
CAUDRON Biplane on April 26.

Telephone : 50 Kingsbury.

"PERRY-BEADLE"

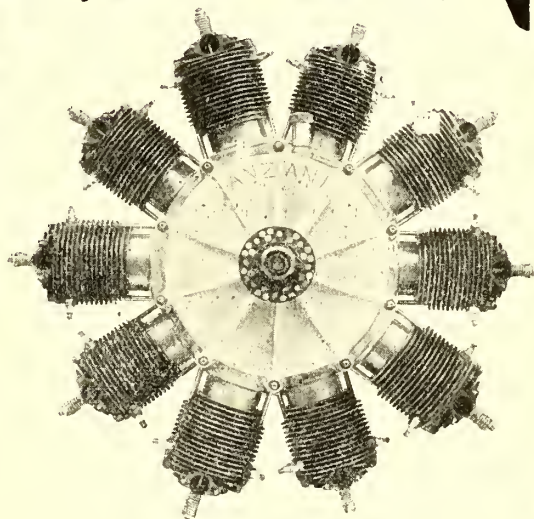
BRITISH BUILT
FLYING BOATS
AND
AEROPLANES.

~~~~~  
Watch our 45 h.p. Tractor  
Biplane now at Brooklands; the  
ideal machine for the private  
owner. Speed, 65 miles per  
:: :: hour. Price, £450. :: ::  
Every class of Aeronautical  
constructional work carried out.  
Send us your enquiries for work  
to be executed to your own ideas.  
~~~~~

Offices and Works:
GOULD ROAD, TWICKENHAM.
ENGLAND.

Telephone—RICHMOND 1109.

"ANZANI"



H.P. 10-CYLINDER.

THE BRITISH ANZANI ENGINE CO. LTD.

30 Regent Street, Piccadilly Circus, London, S.W.
Phone 280 Gervard Wire "Santochimo, London."

"Safe Flying."

It is generally understood that information relating to the products of the Royal Aircraft Factory appearing in the columns of the "Times" newspaper, may be considered as authoritative. Therefore, the article in the issue of May 20th last, headed "Safe Flying," giving certain particulars of the new R.E. biplanes is of some interest, particularly as it enters in some detail into the principles by which the R.E.s have been made inherently stable.

This account indicated that the R.A.F., and presumably the N.P.L., have at least learnt something on the subject of side area during the past few months, as the dangers of too great a side area forward are admitted, though an equally explicit statement of the supposed danger of too great a side area aft is made. This appears to indicate that the R.E.s are very probably in the exceedingly dangerous pseudo-stable condition directionally which was referred to in the last instalment of my article ("A Simple Explanation of Inherent Stability" (concluded), p. 236-7, March 5th, 1914).

It was there shown that on normal turns an appearance of directional stability may be maintained by a reversed pressure on the rudder, bringing the centre of side pressure slightly behind the centre of gravity. An illustration was also given of that even more fatal state in which the centre of side pressure on all fixed surfaces, not including the rudder, is normally very slightly behind or abreast of the centre of gravity, but may on very sharp turns move forward thereof.

The article in the "Times" makes it abundantly clear that an effort has been made to balance side pressures on the R.E.

The Engine Competition.

During the past week there has been a fair amount of activity in the engine sheds at Farnborough, but details of the various performances are naturally difficult to come by.

One gathers that the Argyll has been running a good deal, but that trouble has been caused by over-heating, and consequently that the whole engine has been cased in so as to concentrate all available draught from the fan on the radiator.

When last heard of the Centrum had been withdrawn, as it refused to start from the official fan pulley and clutch, and a large starting handle was equally ineffective.

The Green cubicle was empty during the latter part of the week, and one hears that there is some question of making another type of universal joint to replace the official coupling.

The Anzani made an excellent run of $4\frac{1}{2}$ hours, and then one of the brackets which hold the valve rockers broke, presumably owing to the vibration.

The Austro-Daimler, after doing a $6\frac{1}{2}$ -hour run in very good style, began another run, but broke a piston.

The Wolseley was nearing the completion of a 6-hour run when an oil pipe broke. This was repaired, but sundry minor troubles followed.

All these troubles, except the Centrum's, may be ascribed to the arrangement of the plant, chiefly to vibration of the cardan joint, but also to inadequate cooling caused by the impossibility of putting the radiator in front of the engine, and one hears that there is trouble with belts slipping on the fan pulleys owing to the centres of the driving and driven pulleys being too close.

In a general way one gathers that the truth of the criticisms in this paper has now been thoroughly recognised and that the judges and the managing committee are adopting the very sensible attitude that a first-class aero-engine might very well be wrecked on the R.A.F. apparatus, and that consequently competitors will be permitted to demonstrate the suitability of their engines for aeroplanes in practically any way they wish. Knowing the experience the majority of the members of these committees have had of practical aeroplane work, one may confidently expect that the winner of the competition will be really the best aero-engine, and not necessarily one suited for an Army Service Corps "Caterpillar." Out of evil cometh good.

It has been pointed out by a reader of this paper that in the illustration showing the defective portion of the R.A.F. engine-testing machinery, a part of the Heenan and Froude Water Dynamometer appears, which may give the impression that

about the centre of gravity of the machine—the ideal arrangement admittedly—but, unfortunately, one impossible of attainment owing to the inconsiderate behaviour of centres of pressure in changing their position with varying conditions. Also, it seems clear that the R.A.F. and the N.P.L. are still afraid of spiral nose dives under the action of gravity and a far back centre of side pressure. It therefore appears probable that in these machines the R.A.F. is running considerable risk of entering into one of the above-mentioned dangerous conditions.

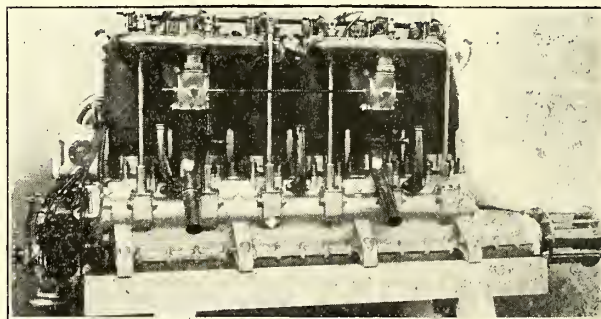
A very simple series of experiments with models suffices to show that the variety of spiral instability due to large fin area aft does not occur within any practicable range of side area disposition. Before the rear fin becomes large enough to be dangerous the machine will become unsteerable. With the R.A.F.'s own pet form of spiral instability, namely, too much side area forward, a machine may show no signs of uncontrollability till it has actually started a "spin" round its nose. A pilot may fly a machine of this type for months and feel perfectly at home on it without ever making the particular degree of insufficiently banked turn on which it passes the limit of its partial stability.

It is to be hoped that those concerned will not only satisfy themselves but will prove beyond dispute by exhaustive experiment that the R.E.s are well within the limit of safety, without waiting for practical demonstrations to the contrary made on the actual machines at the risk of still further losses amongst the personnel of the R.F.C.—W. H. S.

this machine is included in the criticisms therein. As a result of taking the opinions of engine makers whose motors have been under test, one can safely say that the competitors are thoroughly satisfied with the working of the dynamometer, and have absolutely no complaint to make about this part of the apparatus. Those who have had previous experience with the Heenan and Froude machine need not be told that it is uniformly satisfactory.

One gathers from those who have had experience of similar tests, that the usual method employed is to couple up the crankshaft of the engine by means of a flexible coupling, direct to the dynamometer, and that most makers prefer to fit a fly-wheel, or to make the coupling of such dimensions, and so accurately balanced, that it acts as an efficient fly-wheel. One hopes that no one besides the correspondent in question acquired from the article any idea that there was any defect in the Heenan and Froude machine.

In the course of correspondence with this firm as to the principle of the dynamometer, the makers confirm a remark in the article referred to, namely, that there is no fly-wheel effect produced by the water dynamometer, and they point out that this fact forms one of the selling features of the machine, because this lack of momentum greatly reduces the danger of testing, as the machine will promptly come to rest should any fault develop in the engine. This should be of interest to certain clever people who did not agree with the writer on this point.



The 120-h.p. Beardmore-Austro-Daimler engine, of the type on test in the Naval and Military Engine Competition.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," May 19th:—

War Office, May 19th.—Establishments.

Royal Flying Corps, Military Wing.—Sec. Lieut. A. Hartree, R.A., from the Reserve, to be a Flying Officer, and to be seconded (May 3rd).

NAVAL.

The following appointment was made at the Admiralty on May 19th:—Staff-Surgeon—C. J. O'Connell to the "Pembroke," additional, for Calshot Naval Air Station, to date May 27th.

* * *

Several Farman seaplanes have been tested recently by M. Fischer and delivered to the Naval Air Station at Yarmouth. These machines, which are fitted with 100-h.p. Gnomes, can carry fuel for five hours' flying, and are fitted with spring floats. Wireless apparatus is carried, and the fuselage is arranged for a machine-gun. The speed of these machines with full load is 112 kms. (67 miles) per hour, and the climbing speed under good conditions is 1,000 metres (3,280 ft.) in 12 mins.

* * *

There was much flying at Eastchurch on Monday of last week. The machines in use were No. 43 Bristol tractor (80-h.p.), No. 24 Bristol (50-h.p.), No. 153 Bristol tractor (80-h.p.), No. 49 B.E. (70-h.p.), No. 50 B.E. (70-h.p.), No. 104 Sopwith (80-h.p.), No. 150 Avro (50-h.p.), No. 16 Avro (100-h.p.), and No. 31 Henri Farman (70-h.p.) Sopwith No. 104 flew to Isle of Grain, returning as escort to Mr. Churchill. On Tuesday instructional work was done on No. 2 Short (50-h.p.), and No. 10 Short (140-h.p.), No. 70 Maurice Farman (70-h.p.), No. 16 Avro (100-h.p.), No. 150 Avro, No. 49 B.E., No. 43 Bristol, and No. 153 Bristol were flying.

On Wednesday flying was done on No. 7 Deperdussin (70-h.p. Anzani), No. 2 Short, No. 64 Short (50-h.p.), No. 70 Maurice Farman, No. 150 Avro, No. 50 B.E., and No. 31 Henri Farman. On Thursday flying was limited to No. 2 Short,

No. 10 Short (140-h.p.), and No. 70 Maurice Farman. On Friday Short No. 64, Avro No. 160, Short No. 2, and Maurice Farman No. 7 were out, the latter making cross-country flights. On Saturday P.O. Hooper flew Maurice Farman No. 70 to Chatham and back. No. 2 Short was also out.

On Sunday Commander Samson flew Maurice Farman No. 70 to Isle of Grain, going out thence on Short 140.

* * *

On Sunday Commander Samson, R.N., on Short seaplane 140, and Lieut. Brodribb, R.N., on Maurice Farman seaplane No. 72, flew to Dover to assist in looking for Mr. Hamel. No. 72 was wrecked off the pier at Dover, and No. 140 was brought down by engine trouble, and damaged when being handled by an attendant destroyer.

* * *

At Calshot on Monday the Wight seaplane, the Sopwith gun-carrier and the Sopwith (100 Green) were all flying during the day. In the evening Mr. Pixton flew the Sopwith Show bat-boat (bought by Germany) from Woolston. On Tuesday the Maurice Farman and Sopwith (100 Green) made flights. Mr. Pixton in the evening on the Sopwith bat-boat made three flights with heavily banked turns. On Wednesday the Sopwith gun-carrier, the Maurice Farman, and the bat-boat (90 Austro-Daimler) were out, and Mr. Pixton was also up in the evening on a Sopwith.

On Thursday the Wight and the Maurice Farman flew. There was no flying on Friday, and on Saturday Mr. Churchill accompanied by Lieut. Spenser Grey, R.N., visited Calshot, in the "Enchantress," and lay off Calshot over Sunday.

* * *

At Yarmouth on Monday of last week Lt. Bone, R.N., made two flights on Short No. 20, and Sub-Lt. Kershaw, R.N.R., with E.R.A. Stroud, made a flight in M. Farman No. 69. On Tuesday, Mr. Bone made three flights in Short No. 20 with E.R.A. Edwards, C.E.R.A. Hackney and another as passengers. M. Fischer made test flights on new Henri Farman seaplane No. 120. Capt. Fawcett, R.M.L.I., acting as pas-



OFFICER-PILOTS OF No. 2 SQUADRON, R.F.C., BEFORE LEAVING MONTROSE.—Left to right, standing—Lieut. Harvey-Kelly, the late Lieut. Empson, Lieut. Corballis, Lieut. Noel, Lieut. Rodwell, Lieut. Martyn. Sitting—Capt. Todd, Capt. Dawes, Major Burke, Officer Commanding, Capt. Waldron, Lieut. Dawes.

senger observer, and Mr. Kershaw (M. Farman 69), and Lt. Sitwell, R.N., also flew.

On Wednesday, Mr. Bone, on Short No. 20, and Mr. Kershaw, on M. Farman 69, with Mr. Sitwell as passenger, flew in the morning, and in the afternoon the same two pilots and Capt. Fawcett flew, with passengers.

On Thursday morning, M. Farman No. 69 did much hard work, flying under the control of Capt. Fawcett and Messrs. Sitwell, Kershaw and Bone successively, Mr. Bone taking Mr. G. W. Stone (whose photographs of aeroplanes at Yarmouth have been frequently reproduced in this paper) as passenger for 10 minutes. On Friday, M. Farman 69 was piloted in the morning by Messrs. Bone and Kershaw, and by Capt. Fawcett and Messrs. Sitwell and Kershaw in the afternoon. Wireless tests were made on new Henri Farman No. 142 (100 h.p.), M. Fischer piloting with Wireless Operator Hendry as passenger. Later M. Fischer took Mr. Bone as passenger. Thereafter Mr. Bone took this machine to Felixstowe with W.O. Hendry as passenger, returning in the dusk at 8 p.m.

* * *

The pilots at Dundee have been almost every day during the past week up and down the Tay.

Good flying was seen in the gusty wind of Tuesday when Major Gordon, R.M.L.I. (Short No. 74), and Capt. Kilner, R.M.L.I. (Short No. 75), were out. Capt. Kilner was first away and made a circular flight over the district for 40 minutes. Major Gordon was only up half that time and did not go far, the conditions being too "bumpy" for long flights.

On Saturday the officers made three good flights. Major Gordon was first out in Short No. 77, accompanied by A.M. Colman for about 15 minutes, followed by Capt. Barnby, R.M.L.I., who took C.A.M. Dickenson. Some engine trouble ensued and they came down alongside the German cruiser "Augsburg," which was lying off the air station. After adjustment the machine went up the river for another turn. The third flight of some 15 minutes was made by the same officer with Mr. McIntyre as observer.

MILITARY.

The following communiqué has been received:—

Diary of Work for Week Ending May 23rd, 1914:—

No. 2 Squadron.—This squadron remained at York till Friday, 22nd, on which day it moved to Lincoln, where all the machines, mechanical transport and personnel arrived by the scheduled time. The squadron has been delayed at Lincoln to-day owing to continuous heavy rain. It will move to Northampton on Monday, and thence to Netheravon via Oxford.

All ranks are gaining very valuable experience from this progress by stages under service conditions, from Montrose to Salisbury Plain.

No. 3 Squadron.—Over 2,000 miles were covered during the week in reconnaissance flights.

Observation and direction of artillery fire was successfully carried out.

No. 4 Squadron.—The pilots of all three "flights" were out daily engaged in reconnaissance work over Salisbury Plain and the surrounding district.

No. 5 Squadron.—Several long cross-country reconnaissances were made including flights to and from Bath and Brighton.

No. 6 Squadron.—All the pilots of this squadron were out every day on B.E., R.E., and M. Farman machines practising reconnaissance work.

Nos. 1 and 7 Squadrons.—Steady progress was made with the foundation of these new squadrons at Farnborough. A certain amount of flying was carried out, and also instructional work on aircraft and engines.

Headquarter Ft.—Experimental work with aeroplanes and kites was continued.

Aircraft Park.—The Flying Depot will in future be known as the Aircraft Park. This unit has been occupied with repair work to aircraft and M.T. with special courses of instruction and with the technical training of recruits.

General News.—On Tuesday the 19th instant their Majesties the King and Queen, accompanied by Princess Mary, the Chief of the Imperial General Staff, Sir Douglas Haig,

General Officer Commanding-in-Chief Aldershot Command, and their suite visited the Royal Flying Corps (Military Wing). His Majesty inspected the recruits, the workshops, and M.T. sheds, and the aircraft. Twenty-five machines were paraded for inspection; they ascended in turn from Jersey Brow and landed on Farnborough Common, after making a circuit of the Aerodrome. Photographs of the inspection were taken from a Henri Farman at 2,000 feet and the prints were handed to their Majesties at the conclusion of the inspection. His Majesty was in wireless communication with a B.E. At the conclusion of their visit to the Military Wing, their Majesties visited the Naval Airship Detachment, and later the Royal Aircraft Factory.

The funeral of the late Lieut. J. Empson took place at Blacktoft Church, Yorkshire, on Wednesday last, and that of Air Mechanic R. G. Cudmore at Manchester on the following day. Strong detachments from No. 2 Squadron attended both funerals. Lieut.-Col. F. H. Sykes, Commanding the Royal Flying Corps, Military Wing, and representatives from the War Office, and other Squadrons of the Military Wing were also present.

War Office, May 26th, 1914.

* * *

After his Majesty's departure from Aldershot his message to the troops was issued by Sir Douglas Haig. It included the following reference to the R.F.C.:—"I am glad to note the steady development of the Royal Aircraft Factory and of the equipment of the Royal Flying Corps, and I am confident that by inspection and research every thing possible is being done to minimise the perils of flying and to decrease the number of lamentable accidents to gallant officers and men."

* * *

The Army Council has sanctioned the creation of the additional grade of flight sergeant in the Royal Flying Corps (Military Wing) with regimental pay at 7s. a day.

* * *

A public review is to be held on Salisbury Plain on June 22nd, at which four squadrons of the Royal Flying Corps are to take part.

* * *

Capt. Waldron and Lieut. Harvey-Kelly, of No. 2 Squadron, R.F.C., returned to Montrose from York to fly two B.E.s south on Sunday. This flight was cancelled, but on Monday forenoon Capt. Waldron first tested B.E. 328, then B.E. 267, and Mr. Harvey-Kelly also tested 267. Their intention to leave Montrose at mid-day was frustrated by a wind-storm. Tuesday morning was gusty, but Capt. Waldron and Mr. Harvey-Kelly both made district flights. At 3 p.m. they left for York. Evidently there was some delay on the way, as Capt. Waldron is reported as landing early on Thursday morning at Newcastle, Mr. Kelly being behind him. He continued his journey later. These B.E.s, 328 and 267, are to replace B.E. 332 and 222, which were badly damaged near York and have now been returned to Montrose. B.E. 225, which was also damaged, is being repaired and will proceed to Salisbury.

Other two stages in the great route test have been made this week from York to Lincoln and to Northampton.

The 14 men left at the Montrose Aerodrome under Lieut. Lewis are having a busy time with mop and scrubbing-brush, cleaning the Panmure Barracks from head to foot for the yearly inspection on the 26th.

* * *

On Monday the machines and pilots at Farnborough were engaged in rehearsing their flights for the Royal visit next day. On Tuesday 24 machines were paraded—7 B.E.s, 5 Henri and 4 Maurice Farmans, 2 Avros, 5 Sopwiths, and 1 R.E., and each machine made a flight. On Wednesday six machines flew to Oxford, their pilots being Major Longcroft, with A.M. Clark (B.E. 241), Lieut. Lawrence, with Sergt. Boughan (B.E. 239), Lieut. Marsh (B.E. 368), Lieut. Roche (B.E. 234), Major Becke on 608 R.E.1, and Lieut. Rourke (B.E. 329).

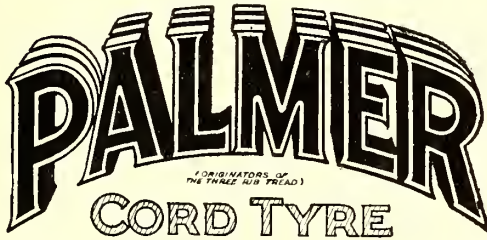
On Thursday five machines went to Shoreham, Major Becke with A.M. Hart (608 R.E.1), Major Longcroft with A.M. Pearce (B.E. 241), Lieut. Lawrence with A.M. Downer (B.E. 239), Lieut. Roche (B.E. 234), and Lieut. Marsh (B.E. 368).

On Friday all the machines needed engine overhaul and new

Fit Palmer Cord Tyres

You then have tyres that grip and never slip, that give buoyancy and added speed, lessen driving strains, absorb road shocks, reduce petrol consumption, and keep you free from annoying tyre troubles on the road.

*Whatever your mileage or tonnage,
you can always depend on—*



THE PALMER TYRE, LIMITED,
119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

Phones: 1214 Gerrard (Four lines). 'Grams: "Tyrecord, Westcent, London."

PARIS: 152, Avenue de Malakoff.—AMSTERDAM: Stadhouderskade 91.—GLASGOW: 6, Royal Exchange Sq.—BIRMINGHAM: Belmont Row.—COVENTRY: St. Mary's Street.—NOTTINGHAM: Greyfriar Gate.—LEEDS: 54, New Briggate.—MANCHESTER: 263, Deansgate.

WHY TAKE NEEDLESS RISKS?

EXTRACT FROM REPORT OF THE ROYAL AERO CLUB.

MAY 12, 1914.

Recommendation.—In view of the numerous instances which have come before the Committee in which the use of a safety belt might conceivably have either prevented the accident or mitigated the results, the Committee strongly recommends that all aircraft be fitted for and with some form of quick-release safety belt in order that the pilot may avail himself of this safeguard should he wish to do so. In making this recommendation the Committee is fully alive to the objections that have been raised to the use of the safety belt.

THE 'AVRO' SAFETY BELT

is built on the most scientific lines by practical men who know the requirements of aviation, and each belt is thoroughly tested.

IT IS THE STRONGEST.

IT HAS THE QUICKEST RELEASE.

42/-.

:: Only one quality—the best. ::

STOP TAKING RISKS TO-DAY.

Write for belt, enclosing cash as above to—

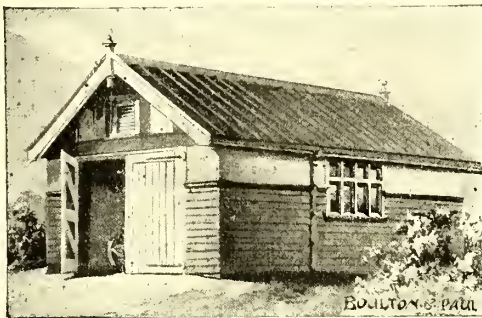
A. V. ROE & CO., LTD.,
CLIFTON STREET, MILES PLATTING, MANCHESTER.

Telegrams: "Triplane, Manchester."

Telephone: 337 Failsforth.

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR HOUSES, CYCLE HOUSES.

GLAZED ROOFS for GARAGES.

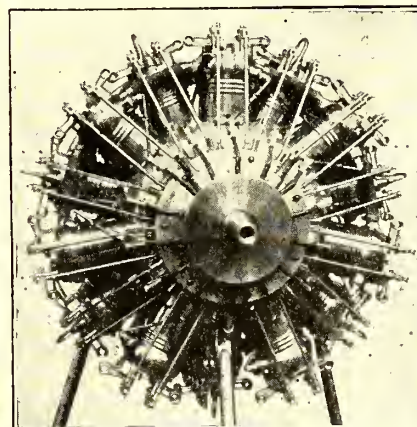
MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

SALMSON AERO-ENGINES

SYSTEM CANTON-UNNE.



Phone No.: 7 Stroud.

Tele. Address: Humpidge. Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

Who are the sole concessionaires for these engines for the British Empire.

London Office:—87, Victoria Street, S.W.

'Phone No.: 7026 Victoria. Tele. Address: "Aeroflight Vic London."

warp cables, so there was little flying; B.E. 239 was the only machine out and was flown by Lieuts. Lawrence and Roche for short flights. The squadron expect to leave on Friday next for the Salisbury Plain concentration camp.

* * *

At the R.F.C. Barracks, at Netheravon, on Salisbury Plain, on Thursday last, Sergeant Coleman was found dead in bed with a bullet-wound in his head and a revolver near by.

FRANCE.

The inflation is proceeding at Toul of the first of the huge French airships which are designed as an answer to the Zeppelin air fleet. This ship is a Lebaudy, fitted with three 300-h.p. Salmson motors.

An Astra is also coming through for Epinal of semi-rigid type, with an envelope of 23,000 cubic metres capacity. Four 250-h.p. Chenu motors are fitted.

A Clément-Bayard is being built for Maubeuge, also of 23,000 cubic metres capacity, with four 225-h.p. Clément-Bayard motors.

A Zodiac is nearing completion at Saint Cyr of 23,000 cubic metres and fitted with two nacelles and four motors of 250 h.p.

GERMANY.

Darmstadt was the meeting-place on May 15th of the pilots starting for the Prince Henry Circuit. The course for the first stage was via Darmstadt, Mannheim, Pforzheim, Strassburg, Speyer, Mannheim, Worms to Frankfurt-on-Main, 400 kms. The 2nd stage from Frankfurt via Wiesbaden, Coblenz, Cologne back to Frankfurt, 375 kms. Both stages had to be completed between the morning of the 17th and the evening of the 19th of May. May 20th to May 22nd were set for the 3rd and 4th stages: Frankfurt, Marburg, Cassel, Braunschweig, Hamburg, 440 kms., and Hamburg, Hanover, Minden, Herford, Muenster, Osnabrueck, Bremen, Hamburg, 565 kms. On May 23rd a strategical scouting flight between Hamburg and Cologne was to be made, and a tactical reconnaissance near Cologne on May 24th.

The proceedings opened at Darmstadt with a four hours' flight, arranged by the local committee, and witnessed by Prince Henry of Prussia and the Grand Duke and Grand Duchess of Hesse. Unfortunately, Lieut. Carganico, an officer of renown, side-slipped and broke his thigh. Steffen's machine was burnt in a train. Lieut. Canter, who in 1913 won both the Prince Henry Cup and the Emperor's Prize, withdrew, as the steel frame supporting the wings of his Rumpler monoplane had been injured during tests, and although it was repaired immediately, he declined to start with the mended machine. Similar reasons stopped Captain von Detten from the start. Stiefvater passed the preliminary tests with a new Dove, built by Prince Siegismund, and was permitted to start *hors concours*.

On May 17th the competitors started at intervals of one minute, Lieut. von Beaulieu first at 4.2 a.m. on an L.V.G. biplane. After nearly 30 minutes due to the controls at Mannheim and Pforzheim not having reported themselves ready, the other 24 men were sent away as follows:—Lieut. von Thuena, L.V.G. biplane; Viktor Stoeffler, Aviatik biplane; Lieut. Bonde, Albatros biplane; Lieut. Schlemmer, L.V.G. biplane; Lieut. Emrich, Otto biplane; Lieut. Waltz, L.V.G. biplane; Lieut. von Hiddessen, Albatros biplane; Lieut. von Buttlar, L.V.G. biplane; Lieut. Pfeiffer, Albatros-Dove; Schauenburg, A.E.G. biplane; Lieut. Hofmann, L.V.G. biplane; Lieut. Kolbe, Albatros-Dove; Thelen, Albatros biplane; Lieut. Ladewig, Rumpler-Dove; Schlegel, Gotha-Dove; Lieut. Joly, Gotha-Dove; Lieut. Gayer, Aviatik biplane; Paschen, German Bristol-Dove; Lieut. Hantelmann, Albatros-Dove; Lieut. Pretzell, Albatros-Dove; Friedrich, Rumpler monoplane; Freindt, Jeannin Steel-Dove; Krumsiek, Aviatik-Dove; Kastner, Albatros-Dove.

Laitsch, who had been doctoring his machine all night, got under weigh at 7 a.m., but the new radiator was defective and caused a descent, and he retired. Each machine carried a military observer and a number of message cards, which were flung out at the control stations.

Soon after 6 a.m. came the news that the L.V.G. biplane, piloted by Lieut. Waltz, with Lieut. Mueller, had side-slipped in landing. The petrol tank had exploded, burning the observer to death.

At 7 a.m., 20 of the 25 starters arrived in Strassburg. On the stage between Pforzheim and Strassburg Lieut. von Hiddessen was forced to land, which he did so heavily as to smash his machine completely. 19 pilots arrived at Frankfurt in times ranging from Stoeffler's 3 hrs. 55 mins. to Thelen's 5 hrs. 17 mins. Schlegel ran into a fence and hurt his hand; Thelen had to alter his radiator, and Lieut. Ladewig to make some odd repairs. The rest set out on the second stage.

Viktor Stoeffler had a motor defect near Holzhausen, and damaged his Aviatik severely in landing. Lieut. Kolbe, who conveyed Lieut. Rohde, was driven out of his route between Cologne and Frankfurt by a strong easterly wind, and was capsized and fell from 400 metres. The pilot got off almost scot free, but Lieut. Rohde was killed.

Twelve aviators arrived at Frankfurt without a stop, the total times for both stretches being:—Lieut. von Thuena, 7 hrs. 13 mins.; Lieut. von Beaulieu, 7 hrs. 40 mins.; Lieut. von Buttlar, 7 hrs. 48 mins.; Lieut. Gayer, 7 hrs. 50 mins.; Lieut. Pretzell, 7 hrs. 56 mins.; Lieut. Hantelmann, 7 hrs. 57 mins.; Schauenburg, 8 hrs. 1 min.; Krumsiek, 8 hrs. 51 mins.; Lieut. Kastner, 9 hrs. 53 mins.; Lieut. Schlemmer, 11 hrs. 6 mins.; Lieut. Bonde, 12 hrs. 52 mins.; and Lieut. Muehlig 14 hrs. 56 mins. Furthermore, Lieut. Joly, Lieut. Ladewig, and Thelen landed at Frankfurt on the final stretch again during the day, after having got their machines working.

On May 18th a number of exhibition flights occurred at Frankfurt, Fokker's demonstrations of looping, etc., being exceptionally fine. Definitely out of competition were the following: Capt. von Detten, Lieuts. Carganico, Kolbe, von Hiddessen, and the civilians Laitsch, Stoeffler, Freindt, Friedrich, and Schlegel.

At 4.20 a.m. on May 20th the competitors started for Hamburg, 440 kilometres, via Marburg, Cassel and Brunswick, in the following order: Schauenburg, Serno, Hofmann, Emrich, Ladewig, Bonde, Kastner, von Beaulieu, Joly, von Buttlar, Schlemmer, Hantelmann, Thelen, von Thuena, Gayer, Krumsiek, Paschen, Stiefvater, and Schroeder. Of these, Serno, Hofmann, Emrich, Paschen, Stiefvater and Schroeder were *hors concours*. Lieut. Pfeiffer arrived in Frankfurt from Wiesbaden on the second stage soon after 6 a.m., and set off for Hamburg. Several men landed at the Cassel control, where Stiefvater ran into Lieut. Kastner's Albatros-Dove, smashing up both machines. Schauenburg had to return to Frankfurt for a new radiator. At 9 a.m. Lieut. von Buttlar arrived at Hamburg, closely followed by Lieuts. von Beaulieu, von Thuena and Schlemmer, the latter only threw out his report without landing and continued on the fourth and last stage. Lieut. Gayer, too, after landing in Hamburg, went on at once.—B.

The finish of the Prince Henry Circuit leaves the competitors classed provisionally as follows:—

The Kaiser's prize for military aviators: 1, Lieut. von Thuena (L.V.G.-Mercédès), 17 hrs. 15 mins.; 2, Lieut. von Beaulieu (L.V.G.-Mercédès), 17 hrs. 30 mins.; 3, Lieut. von Buttlar, 17 hrs. 45 mins.; 4, Lieut. Joly; 5, Bonde; 6, Muehlig; 7, Ladewig; 8, Gayer; 9, Pfeiffer.

Prince Henry's prize for civilians:—1, Krumsiek; 2, Thelen; 3, Schauenburg; 4, Paschen.

On May 22nd Zeppelin III left Friedrichshafen at 9 a.m. and remained in the air 34 hours, covering 2,100 kms. (1,260 miles), and finally alighting at Johannisthal, having beaten both duration and distance records. The flight included a trip to Heligoland, and the maximum height reached was 3,125 metres (about 10,000 ft.).

The misplaced enthusiasm of the German police has caused some inconvenience to M. Clement Bayard. The famous dirigible constructor had been paying a business visit to Frankfurt, Hamburg, and Berlin accompanied by two of his engineers, and on their way home they determined to stop and watch the behaviour of the local Zeppelin which was manoeuvring outside Cologne. While they were lunching they were accosted by police officers and escorted to the police station, where they were searched and questioned, and finally locked in the cells. Next morning they were interviewed by the Public Prosecutor and finally released. Considerable feeling is being manifested both in France and Germany at the high-handed behaviour of the German police.

The Wilbur Wright Memorial Dinner and Lecture.

To any student of human nature possessing an intimate knowledge of the inwardness of things aeronautical in this country, and blessed with a sense of humour, the Aeronautical Society's dinner on Tuesday of last week in memory of the late Mr. Wilbur Wright, was quite one of the most entertaining functions of recent date. Some of the humour was intentional, and of a high order—some of it was unintentional, and it speaks well for the self-control of the audience that they did not give way to their suppressed emotions.

Prior to the regular speech-making, Mr. Griffith Brewer, one of the oldest friends of the Wright Brothers in this country, gave the audience a brief history of the Wilbur Wright Memorial Fund, which, he explained, was raised not to prevent people from forgetting the name of Wilbur Wright, which would be unnecessary, but to show how much we in this country appreciate the great work he did. Mr. Brewer told us how £550 had been raised to provide capital, the interest of which would pay for the Wilbur Wright Memorial Lectures. The "Times" had stated that £1,200 was necessary, and Mr. Brewer proceeded to relate how he had taken steps towards raising another fund altogether, for quite another purpose, which apparently would not be accomplished, so that when the time limit for the use of this second fund had expired, the contributors to this fund might be induced to make it over bodily to the Wilbur Wright Fund, a piece of high finance which gives one great hopes for Mr. Brewer's future if he should ever take to serious dealing in the City. Mr. Brewer has certainly done much good work for the memory of Wilbur Wright, and one is glad to see his success.

The Rt. Hon. Lord Montagu of Beaulieu, proposing the "Imperial Forces," said that the Services were becoming more and more identified with aviation. To-day we could legitimately be proud of the work which was being done by the Navy and Army, and the lead of foreign Powers had been sensibly diminished. He expressed his pleasure at seeing with us Colonel Seely, who had done so much for military aviation, a statement which was received in rapturous silence, doubtless due to the respectful emotion felt by the audience.

Rear-Admiral Sir Charles Ottley, K.C.M.G., in replying, said that the Navy was an efficient fighting machine, and that victory was won by the spirit of the personnel. The Royal Flying Corps had brought back again to us the true meaning of the old Latin motto, "Dulce et decorum est pro patria mori."

Major-General S. B. von Donop, K.C.B., Master-General of the Ordnance, replying for the Army, tendered the thanks of the Army Council for the assistance rendered to military aviation by the members of the Aeronautical Society. As a tribute to Colonel Seely's early work, he said that he had chosen to organise the new Department of Military Aeronautics the one man most suited to the work. General Henderson had given up the office of Director of Military Training, which was generally regarded as the pick of all military offices, in order to devote himself to aviation. Needless to say, the audience showed that they appreciated General von Donop's tribute to the present chief of Military Aviation.

The toast of "Flying" was proposed by Brig.-General D. Henderson, C.B., D.S.O., Director-General of Military Aeronautics, who was greeted with prolonged applause. It is always worth while going anywhere if General Henderson is to speak, for one is sure of hearing something worth remembering. It is perhaps a doubtful compliment to pay so efficient a soldier, but one cannot help hoping that some day when his onerous task of organising an efficient Flying Corps is accomplished, General Henderson will write a book on flying in general.

General Henderson said that flying had not turned out exactly the way one first expected it to do, when we thought that all young men with money would take up flying for sport. As such it had not yet become popular among the gilded youth of this country. For some strange reason, well-to-do people seemed to think it was their duty to society to die in their beds. Some young men who had tried flying, said that they did not find it as exciting as golf or gambling,

or other fashionable sports. There was a proverb that those whom the gods love, die young; which possibly accounted for the prolongation of some lives, for certainly one could not see in many of the aforementioned gilded youth, any attraction for gods, still less for goddesses. (Presumably, General Henderson was deliberately distorting the proverb, which one imagines implies that those whom the gods love retain the spirit of youth till they die of old age.) However, he continued, we might in future hope to see more young men flying for sport.

When one thought of the aeroplanes of two or three years ago, running about on the ground like unfledged chickens, and then considered how he had seen on that day thirty machines start off and fly with the regularity of clockwork at two-minute intervals, one realised the progress that was being made in flying to-day. The two great enemies of fliers were fog and darkness. The only way to fight them was by means of either infallible engines, or duplicate engines, so that something would still go on. As to the progress of military aviation, he said that no one knew better than he what Colonel Seely had done.

Then arose the guest of the evening, Colonel Seely—I think the good old Scottish word "blethered" perhaps expresses best the nature of his discourse. He referred affably to the "bright young minds of the Aeronautical Society." Being a person who is apparently apt to judge by externals, he possibly referred to the lustre of the unhirsute craniums of some of the distinguished members. He told us he had done a lot of flying, and endeavoured to convey the idea that he knew quite a lot about it, which was unfortunate under the circumstances. One of course knows that Colonel Seely is an adept in the handling of figures, so it was interesting to hear that he estimated that 604,000 miles had been flown on Service machines in the past year, and that he thought that perhaps 1,000,000 miles had been flown in this country, if one included the "brave young civilian pilots." Considering how much flying is done by the numerous excellent pilots of the Royal Flying Corps, and considering, thanks very largely to Colonel Seely's method of encouraging the industry and supporting civilian schools, how comparatively little flying is done by civilian pilots, the proportion seems somewhat warped. The orator then proceeded to tell us that he believed the problem of the safe aeroplane had been solved. On Friday last, he went up to 2,000 feet and actually steered an aeroplane himself, while the pilot let go the controls and sat with his hands behind his head. Of course Colonel Seely referred to the type R.E. biplane, in which the Royal Aircraft Factory have apparently produced a really decently balanced aeroplane at last, after considerable expenditure of money. Unfortunately, Colonel Seely either did not know, or omitted to mention that machines equally stable have been in use in the German army for anything under two years, and that if certain inherently stable machines in this country had been encouraged as they should have been, two or three or four or five years ago, we might have had such machines in general use here. He also told us how surprised Wilbur Wright would have been if he had lived to see such things. If the shade of Wilbur Wright was present at the dinner, as one hopes he was, he was probably more surprised still! Colonel Seely wound up by informing the audience, several of whom have a fair working knowledge of aviation, that the great danger in flying was that one could not get down at less than 40 m.p.h. At this point so great was the sensation caused by his oratory that strong men wept—I distinctly saw one pioneer of aviation cover his face with his hands, while his shoulders shook with emotion—and I am sure that if children had been present women would have clutched them to their breasts. One wonders whether Colonel Seely has ever seen a really good pilot, say like Mr. Hamel or Mr. Hucks, or Mr. Pixton or Mr. Busteed land at about 10 miles an hour, and pull up in about as many yards. But then, of course, Colonel Seely's knowledge of aviation is apparently confined to what he is told by the Royal Aircraft Factory, and to what he reads in the "Times" and "Daily Mail."

A welcome relief came from Colonel J. B. Capper, C.B., R.E., like Mr. Brewer one of the earliest friends of the Wrights in this country, and formerly Officer Commanding the old Balloon Section of the Royal Engineers. He recalled the early work of the Wrights, such as Wilbur's duration record of 42 seconds, and showed how Wilbur and Orville Wright had fired the French pilots with the spirit of emulation, which accounted for so much of the early lead that country held.

Mr. Mervyn O'Gorman, C.B., was set down to propose the toast of Kindred Societies, and he had so many kindred societies to propose that he came to the end of his time limit almost as soon as he had reached the end of the list of societies. Consequently we were deprived of the pleasure of hearing the neat anecdotes with which Mr. O'Gorman points his arguments when making a speech. He only had time at the very end, when advocating that steps should be taken to advance the work of the Aeronautical Society, to illustrate the remark with the tale of the late Mr. Barnum who, when asked what steps he would take if one of his tigers got loose replied tersely, "damned long steps."

The toast was responded to by Sir Archibald Geikie, F.R.S., and Mr. W. Duddell, M.I.E.E.

The toast of "The Guests" was proposed by Mr. A. E. Berriman and responded to by Sir Hay Frederick Donaldson, K.C.B.

Something under 100 persons were present, a large proportion of them being guests, and one cannot help feeling that if this dinner is to be an annual affair, the Council of the Society would do very much better to bring the price thereof within the financial scope of the great majority of its members. The budding aeronautical scientist, on whom the Aeronautical Society presumably depends for the bulk of its membership, does not as a rule find that the bright young brain to which Colonel Seely so touchingly referred produces an adequate stipend to permit him the luxury of paying a guinea for his dinner, even though it be a State affair, and includes wines and cigars, and admission to that co-operative palace, the Royal Automobile Club. Also some of the more studious members may find that wines and cigars affect deleteriously on the following morning the said bright young brains, and would prefer to eschew these extras. After all, on these occasions, especially when one is honouring the memory of such a man as Wilbur Wright, it is the number of those interested in the occasion which counts more than the luxury of a Lucullan feast.

Also, perhaps on the next occasion, they will discover someone with a real knowledge of his subject, and worthy of the respect of the membership of the Society, to occupy what should be the honoured position of the guest of the evening.

The Second Wilbur Wright Memorial Lecture.

The Council of the Aeronautical Society may be congratulated to a great extent on their choice of Dr. R. T. Glazebrook, F.R.S., as the lecturer on the occasion of the second Wilbur Wright Memorial Lecture. Dr. Glazebrook is a scientist of international renown, under whose direction the National Physical Laboratory has done much work of immense value in many and divers branches of scientific research, and he is in addition one of the most fascinating speakers on scientific subjects in England to-day.

The lecture itself, entitled "The Development of the Aeroplane," dealt almost entirely with "the work of experiment and scientific research in the development of the aeroplane," and naturally was confined to that part thereof carried out at the N.P.L.

Details of tests made to determine the accuracy of wind tunnel experiments, by repeating the same experiments on the same models in different sized wind tunnels by different observers, and of those to determine what corrections should be made to the law that resistance varies as the square of the speed, are of considerable interest and value. Dr. Glazebrook showed how experiments demonstrated that the efficiency of a plane varied with different speeds. From these the lecturer proceeded to give results of tests on model machines to determine some of the stability co-efficients, also distinctly

useful. In this connection Dr. Glazebrook drew attention to a point of considerable importance, namely, the effect of the wash of the main planes on the righting moment, caused by the tail in an ordinary longitudinally stable machine, showing that this amount is actually only about one-half of that which would occur were there no disturbance from the leading planes.

So far, the lecture dealt with actual experimental work, the accuracy of which may be accepted, but Dr. Glazebrook thereafter gives a series of mathematical deductions from these results as to the effect of certain forms of disturbance on actual aeroplanes. Naturally, these results are more dubious than the directly experimental ones, but they indicate the methods of investigation applicable to such cases, and are only in doubt because of the incompleteness of the data available.

Thereafter, Dr. Glazebrook discussed the strength of aeroplanes in eminently sensible terms, pointing out that there are or have been cases when the necessity for certain flying qualities preclude the possibility of a factor of safety as large as would otherwise be demanded, but expressing the belief that the problem of providing a sufficient margin of strength will not be found to be beyond the capacity of British manufacturers. Inidentally, Dr. Glazebrook stated that as far as it had been possible to calculate them, the maximum possible stresses which could be imposed on a machine by diving and flattening out will be of the order of 8 to 10 times the normal loading—a value somewhat higher than has been suggested in this paper as probable—but distinctly nearer to probability than figures which have emanated from certain sources supposed to have the resources of the N.P.L. behind them.

In conclusion, Dr. Glazebrook stated that he felt it a great privilege to announce for the first time that the R.E. was an aeroplane designed in accordance with the investigations of the N.P.L. and was an inherently stable machine. This is, of course, a matter whereof the N.P.L. has reason to congratulate itself, as a vindication of the substantial correctness of their work. One fears, however, that Dr. Glazebrook will find some tendency on the part of the R.A.F. to take the lion's share of the credit to which they have no claim whatever, as there is not "anything new or never done before" about the principles of stabilising employed in the R.E., and with the money and time they have had to dissipate the R.A.F. should have discovered the approximate proportions of the different ingredients required to produce a stable aeroplane by trial and error combined with a little commonsense at least two years ago, as certain independent manufacturers actually did, then or earlier.

The Chairman, Lord Sydenham, in proposing a vote of thanks to the lecturer, protesting ignorance of the subject, but showed by his remarks that he knows considerably more about it than many who are regarded by the Press as "experts."

Mr. Flanders on the Albatross.

Mr. L. Howard Flanders, who has been journeying in the Southern Hemisphere since his bad motor-cycle smash last year, has been taking advantage of his sea trips to study the flight of the albatross. In a letter to *THE AEROPLANE* he says that it is not really so wonderful as it is often stated to be. In calm air albatrosses flap nearly the whole time. In a high head-wind they will glide for hours near the ship, though if they fall to leeward or to windward they have to flap hard to get back.

A piece of paper thrown off the stern of the ship in such a head wind will rise sharply at any angle up to 30 deg. for 30 ft.

The albatross has a very remarkable speed range, which, combined with the up currents indicated by the paper, seems to account for the alleged soaring flights. Hitherto the flight of these birds has not been observed by anyone trained in aerodynamics or in the study of air currents, so Mr. Flanders' notes have much value, and may dispel some of the reputation of this over-rated flier.

One is glad to record that Mr. Flanders' health is now much improved and that he may soon be home.

ACCLES & POLLOCK, LIMITED.ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
ONE QUALITY—THE BEST**OLDBURY,** Send for 25" X 20" Chart of Full-Size Sections,—Post Free
BIRMINGHAM. TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.


CELLON

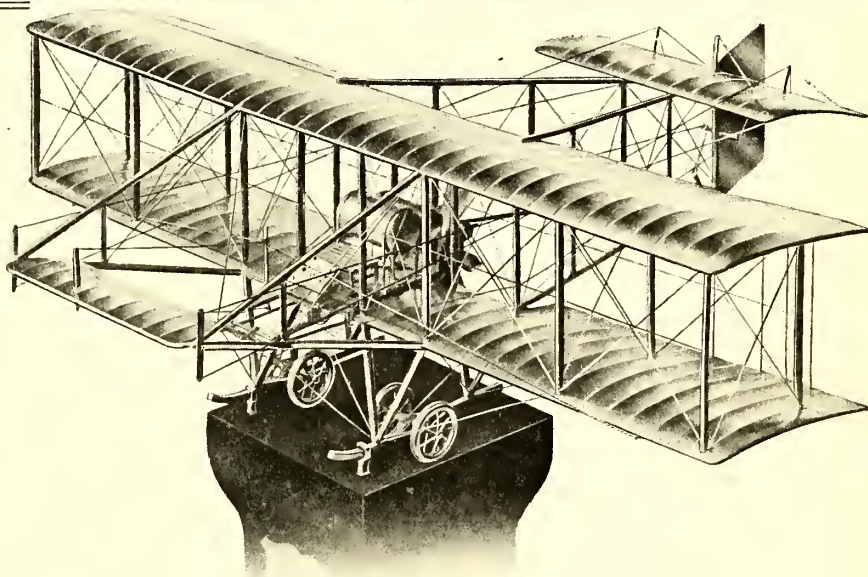
DOPES 9 and 10 Make the FABRIC FIREPROOF**CELLON, LTD., 17, OLD BROAD STREET, E.C.** Telegrams: "AJAWB LONDON." Telephone: 5359 London Wall.

Models

The Company specialise in the production of Silver scale Models of Aeroplanes, and have prepared models of the most famous machines for the foremost aviators.

Representative sent to any address to take full particulars upon application.

Photographs and Estimates submitted free. 



Silver scale Model of the Grahame-White Biplane, modelled by the Company.

Mappin & Webb LTD.

158-162, OXFORD STREET, W.

220, REGENT STREET, W.

2, QUEEN VICTORIA STREET, E.C.

Paris: 1, Rue de la Paix.

Lausanne.

Rome.

Nice.

Biarritz.

Buenos Aires.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Aerial Derby Which was Not.

For the first time on record one of Hendon's really big days has been spoilt by the weather. On Saturday last the Aerial Derby had to be postponed till next Saturday week, June 6th. After all, the regular visitors to Hendon cannot grumble, for they have had wonderful luck, taking it all round, and in paying their money and not seeing the big race they are no worse off than if they had gone to a cricket match which was spoilt by the rain, or to a yacht race spoilt by the wind, or for a day's hunting spoilt by frost. As flying is now, mere wind and rain would not have stopped the race, but there is one thing which utterly defeats the best aviator, namely, fog.

Even when it was fairly clear on the ground and it was possible to see from the enclosures to Bittacy Hill, the more intelligent spectators noticed that when a machine went up it disappeared in the clouds, which were merely flying fog, at 1,000 feet. or even less, and the pilots reported that long before they reached a height at which it would be reasonably safe to fly across country they were unable to see half way to Harrow, so that it would have been quite impossible to have seen the turning points.

Just before it was time for the race to start. Mr. Grahame-White took up the Maurice Farman for a test, and being convinced that cross-country flying was dangerous, the Stewards appointed by the Royal Aero Club—who, kindly note, have nothing to do with the London Aerodrome—declared the race off. How bad the weather was in the Thames Valley may be judged by the fact that the Brooklands contingent who were going to fly over directly after lunch did not attempt to start, for they could not see from the sheds to the paddock, and as they included such experienced pilots as Messrs. Barnwell, Alcock, Sippe and Waterfall, there is no arguing about whether the race could have been held or not.

Mr. Raynham and Mr. Pixton had come over in the morning before it began to rain, and even then it was so thick that Mr. Pixton could not see his regular landmarks, and trusted to his sense of direction, taking sights half a mile or so ahead. At that time what little wind there was, about 15 miles an hour, was blowing from the South-West, and Mr. Pixton on the Sopwith tabloid with a 100-h.p. monosoupape Gnome, covered the 20 miles in 10 minutes, so that the machine must do something very like 110 miles an hour in still air, probably rather over than under. She lands at just the same speed as the 80-h.p. tabloids, touching ground at under 30 m.p.h., and like them doing a couple of slow hops afterwards before she finally settles down. It was this wavy landing, which is unavoidable in gusty weather with so light a machine, which brought trouble on the Sopwith team. Mr. Pixton was landing from a test flight, and touched first a little north of the finishing line. Unfortunately the ground towards the shilling enclosure is also wavy, and the trough of a machine wave coincided with the crest of a ground wave, with the result that the left skid broke, and small blame to it. The machine pulled up on its left wing tip without damage, and strenuous steps were at once taken to make a new skid in less than no time in the Grahame-White works. Luckily, from the Sopwith point of view, the postponement of the race saved the machine from being scratched.

Mr. Raynham did some pretty flying on the Avro scout (80 monosoupape Gnome), but the machine does not please me as well as the firm's ordinary 80 h.p. does. She still has swept-back wings, as at the Show, and the air-brakes have been nailed down. She seems to need a long run before she leaves the ground, and gets off with a list to starboard. When once in the air she seems to fly well, but does not climb particularly fast. Also she appears to fly tail down. In order to give sufficient air to the engine, which it will be remembered sucks air through the exhaust valves, instead of through the crankshaft as in the older type, it has been necessary to cut away the lower portion of the cowl to prevent the exhaust gases from being carried round inside the cowl and being sucked into the cylinders again instead of fresh air. This opening in the cowl seems to slow the machine, which is obviously not as fast as the 80 Sopwith and Bristol Scouts with the ordinary Gnomes and Clergét respectively. Good judges estimate her

speed at about 90 m.p.h., as against 95 to 97 or the others. Of course, she is purely experimental, and as such is quite a good effort, but Mr. Roe can and will produce something a good deal better. To begin with, I think he would do well to fit a pair of ordinary straight wings with ordinary bracing and ailerons for the race on June 6th.

Shortly before the race was due to start Queen Alexandra with the Empress Maria Feodorovna of Russia and suite arrived, much to the surprise and gratification of all those who have so long desired that serious aviation should receive the seal of Royal approval, and it is all the more to be regretted on this account that the race had to be postponed. However, all the aviators present went up and did their best to entertain Their Majesties. One still hopes that the King himself may some day honour a big air race with his presence, as he habitually does in the case of horse racing. Unfortunately hitherto flying has chiefly been patronised by semi-royalties, acting-sub-assistant Teutonic princelings, hereditary hospodars of wild Wallachian provinces, morganatic nieces-in-law of reigning monarchs, mediatised aunts of Grand Dukes of microscopic independent States, and suchlike quaint people of the kind found at resplendent entertainments given by socially aspiring Americans in big hotels, but not in the drawing rooms of the old British nobility and gentry.

During the afternoon everyone flew energetically, so far as the low clouds permitted. Young Lord Carbery, an energetic pilot, whose somewhat erratic flying is redeemed by excellent landings, looped the loop several times, once with an expensive American passenger. This was rather an impressive performance, for as the machine went up it disappeared into a thick cloud, and reappeared upside down. That American can now go home and tell Oshkosh, Wis.—or wherever he comes from—that he is the only citizen of the great Republic who has ever paid a real live lord to take him up in an aeroplane and fall through a cloud upside down. He might do well as a Chautauqua lecturer on the strength of it. Mr. Goodden, on his favourite Caudron, also looped several times, with the neatness and precision which characterises his flying on this machine. Mr. Carr and Mr. Strange in turn looped on the little Grahame-White tractor, commonly known as "Lizzie," which is certainly the best all-round 50-h.p. biplane I have ever seen. Mr. Birchenough cut figures on one of the box-kites with his usual skill, and one wished more than ever to see him on a really good 80-h.p. machine, say of the latest Henri Farman type. M. Noel and Mr. Goodden both flew the new Hendon-built Moranes. Mr. Ding made a cross-country trip on the Handley Page inherently stable, self-controlling, biplane, landing beautifully. Mr. Grahame-White flew the old G.-W. Maurice Farman, now rejuvenated, and M. Verrier "hovered" with success on one of the Aircraft Manufacturing Co.'s "Maurices."

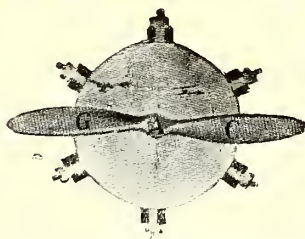
A race round the pylons was also held. This was won by M. Noel on the Morane after a close finish with Mr. Grahame-White on a Maurice Farman, M. Verrier, Mr. Goodden and Mr. Strange all being close up. Soon afterwards it began to rain in earnest, and the large crowd went home, having had, at any rate, a very good show of flying; more in fact than if the Aerial Derby had actually been held. One heard a certain amount of grumbling, but the great majority of people seemed to realise that no one was to blame except the weather.

Towards evening those of us who knew he had left France became very anxious about Mr. Hamel, for beyond the fact that he had left Hardelet, near Boulogne, about midday, no news could be heard of him, and as we knew he was flying a racing machine of 100 m.p.h., which would be difficult to land anywhere, and more so in a fog, our anxiety was not at all decreased. As I left the aerodrome in the rain and gathering dusk, the last person I saw was Mr. Hamel's faithful friend and mechanic, M. Gondre, anxiously inquiring for replies to various messages sent to all towns along our coasts.

It was not a cheerful close to the day, and one hopes that on Saturday week the weather will be all it should be, and that the crowd will be bigger than it would have been if last Saturday had done its duty.—C. G. G.

EVERYTHING FOR AVIATION & AVIATORS
"THE LATEST & THE BEST."

Booking
Office for
Passenger



and
Exhibition
Flights.

GENERAL AVIATION CONTRACTORS, Ltd.,
 Phone: 280 Gervard. 30, Regent St., Piccadilly, S.W.
 Wire: Santochimo, London
 Cables: Aeros, Milan. and at Milan.

One Moment—Mr. Aviator!

Just reflect how easily little mishaps occur. Be prepared. You can dress wounds promptly and properly by means of this pocket outfit of bandages, etc.

'TABLOID'

FIRST-AID

No. 706 (Aviator's)

Burroughs Wellcome & Co., London

Price, 7/6. All Chemists

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

We supply as a Speciality

WIRE STRANDS and CORDS for AEROPLANES and AIRSHIPS

made of bright galvanised and tinned music wire of high breaking strain.



TRADE MARK.

Felten & Guillaume Carlswerk A. G. Mulheim-on-Rhine.

Agents for the United Kingdom:

For Insulated Wires and Cables for Electric Light and Transmission of Power, and for Rail Bonds;
R. R. TODD, 334, Birkbeck Bank Chambers, 329, High Holborn, London, W.C.

For all other Manufactures: **W. F. DENNIS & CO.**, 49, Queen Victoria Street, London, E.C.
 Telephone: 343 BANK. Telegraphic Address: "FREDENNS, LONDON."

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works: BROOKLANDS AERODROME, WEYBRIDGE, SURREY.

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone: Byfleet 190.

H. A. TURRILL

Aeronautical Engineer and Automobile Representative

GWYDIR CHAMBERS,

104 High Holborn, London, W.C.

AERONAUTICAL.—Balloons, Hangars, and Blackburn Aeroplanes.

AUTOMOBILE.—All makes of Cars supplied. Special Delivery of ARROL-JOHNSTON and KRIT CARS.

Telephones: HOLBORN 4950, 1791.

HANGARS.

Any size built and fitted with

PERFECT SLIDING DOORS

obviating all the disadvantages of every present system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

GARAGES, CLUB HOUSES
 and other buildings. Estimates Free.

WIRE-WOVE ROOFING COMPANY,
 108, Queen Victoria St., London, E.C.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

More Wight Seaplane Tests.

During the past week tests have been carried out on the Solent with the new Wight seaplane 200-h.p. Salmson engine, built for the German Navy. On the Monday Mr. Gordon England took the machine straight out from the works and for her first flight went for the hour's test, which the machine passed perfectly in spite of some very bad gusts. On the return from the flight the petrol was measured and it was found that the consumption of the big engine was only 14 gallons per hour. Mr. Gordon England then went for the climbing test of 3,000 feet, but gave up as it was quite hopeless owing to the state of the air. The machine reached 1,900 feet at an average of 400 feet per minute, the Clift air-speed indicator showing a speed of 55 miles per hour. On reaching that height a down current was met of such magnitude that although the speed meter showed the machine to be climbing at the same rate, it actually dropped to less than 1,700 feet. Afterwards the speed test was carried out, and in the course of it all the water escaped from the radiator. The machine was taken in tow by the yacht "Westoe," belonging to Mr. J. Redhead, to whom thanks are returned for a free tow.

On the Wednesday the machine again tried the climbing test, climbing the first 1,000 feet in $1\frac{1}{2}$ minutes, the second in $4\frac{1}{2}$ minutes and the third in 3 minutes, though the speed was constant, which gives some idea of the state of the air.

On the intervening Tuesday, a number of passengers were taken for flights, including Miss Gertrude Bacon, the well-known lecturer, Mrs. Gordon England, the pilot's wife, Mr. Howard Wright, the designer, Mr. DeLaCombe, the Admiralty contractor, and Mr. Ferguson, the cinematograph operator who accompanied Mr. Hucks across the Channel to photograph the Royal yacht. Mr. Ferguson sat on the point of one of the floats so as to get pictures of the effect of the floats on the water, starting and landing. In spite of his weight and air resistance being so far out of centre it made practically no difference to the flying of the machine. Capt. von Pustau, late of the German Navy, who has purchased the machine, was also a passenger, as was Capt. Dent, R.N.

On the Thursday, weight-lifting tests were made, the machine with a load of 1,130 pounds climbed a thousand feet in 4 minutes, and reached 2,000 feet in 10 minutes, and 3,000 feet in $13\frac{1}{4}$ minutes, again showing the curious state of the air. Later an extra passenger was taken on board, and with a total useful load of 1,230 pounds the machine climbed to 1,000 feet in 6 minutes. Everyone with experience of aeroplanes who has been in the machine agrees that it far surpasses anything built abroad. Two similar machines have already been

delivered to the Naval Air Station at Calshot, and seven more are now on order for the Navy.

A Good School.

Those who are thinking of learning to fly will do well, if in the course of their inquiries as to what school they should join, they make sure to find out what the British Caudron Company can do for them. Every school has its good points, and excellent arguments why one should join it, and the Caudron is like the rest in this respect. Its arguments are certainly very sound. Imprimis, it is the only school composed entirely of tractor biplanes, and as the Army authorities seem to prefer tractor biplanes to everything else, the Caudron people argue that one of their pupils can go straight onto the R.F.C.'s Sopwiths, Avros, or B.E.s without having to learn a new type. Also, it is argued that the Caudron is very nearly inherently stable, as, indeed, they have proved themselves on several occasions, so that if a pupil finds himself in difficulties at any height he need only leave the machine alone and she will come back to a flying position. Further, the Caudron is very easy to control. Again, the firm argues that if a smash does occur the pilot is so placed that he will emerge unhurt from a smash which would probably kill him in a machine of other design. Undoubtedly, Caudron pupils have on occasion taken the most appalling tosses without hurt, though, owing to the ease of control, accidents are rare. The soundness of the machine is shown by Mr. Goodden's wonderful looping and fancy flying, not merely on a standard Caudron, but actually on a renovated school machine. Certainly, the editor of this paper has no hesitation in recommending the Caudron school as a place where one is taught to fly well on machines of good design and construction.

An Inherent Stability Trip.

The flight by Mr. W. Rowland Ding when he carried Princess Ludwig of Lowenstein-Wertheim across the Channel on the Handley Page biplane is a more noteworthy performance than might appear, for it is the first time that a passenger has been taken across the Channel on a British machine of the self-controlling type of which we have heard so much lately. Though Mr. Ding has been connected with aviation for some time he only passed for his certificate quite recently, and his cross-Channel trip is actually only his third real flight on this type of machine. The fact that he was able to fly first to Eastbourne, then to Dover, then to Calais, and finally to Hendon without mishap of any kind, shows that not only the machine is remarkably easy to fly, but that it is very controllable in landing and starting, which is just where these self-controlling machines are supposed to be at their worst.



Princess Ludwig of Lowenstein-Wertheim with Mr. Rowland Ding as pilot, starting for France on the Handley Page Inherently Stable Biplane, on May 20th.

The Latest Bat-Boat's Tests.

The Sopwith Aviation Co., Ltd., like J. Samuel White and Co., Ltd., have, during the last week, put a seaplane through its tests for the German Navy. This is a Bat-Boat exactly similar to the one at Olympia, and like that equipped with a 200-h.p. Salmson. Exact figures of the tests are not at the moment available, but those who watched her performances say that she gets off the water with the greatest ease and alights extremely smoothly. Her speed was shown by the Clift indicator to be 78 miles per hour, so that she is one of the two fastest seaplanes in the world. The load, it should be noted, includes not only pilot and passenger and fuel for five hours' flying, but also a wireless apparatus driven by a separate small engine set right inside the boat so that in the event of the failure of the main engine at a considerable height it will be possible to wireless the occurrence with the aid of the small engine.

An interesting feature of this machine is that the pilot, after a short preliminary test, started from the sheds where she was assembled at Southampton and flew right down past Netley without touching any of the controls, taking his feet off the rudder bar and his hands off the control lever. There was not even a piece of string attached to the rudder-bar for the passenger to operate. One would have expected a certain amount of turning effect from the propeller, but one gathers that in some peculiar way the stream from the propeller turns the rudder sideways slightly and holds it there, with the result that the machine flies absolutely straight.

An exactly similar machine has already been delivered to the Naval Air Station at Calshot.

The Week's Work.

Weather Report for Week Ending May 24th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands	Good	Good	Good	Fair	Good	Windy	Windy
Calshot	Fine	Fine	Fine	Dull	Show'y	Fair	Fair
Eastbourne	Fine	Fine	Fine	Fine	Fine	Breezy	—
Eastchurch	Fine	Fine	Fine	Fine	Fine	Windy	Windy
Hendon	Fair	Fair	Fair	Fair	Windy	Rain	Windy
Montrose	Wind	Gusty	—	Wind	Wind	Fog	—
Shoreham	Fair	Fair	Wind	Wind	Wind	Wind	—

Flying at Brooklands.

On Monday afternoon Mr. Barnwell took several passengers on the 70-h.p. Vickers biplane. The 50-h.p. Bristol School biplane was also out. Mr. Busted flew the Bristol Scout. Mr. Mahl was carrying passengers on the 80-h.p. Sopwith. Mr. Rowland Ding, with a passenger, arrived on the Handley Page inherent stability biplane, 100 Anzani, leaving later in the evening. On Tuesday, the Blériot School started. Major Phillips, D.S.O., Vickers pupil, took a very good brevet at 400 ft. Mr. Busted was out on the Bristol Scout. Lieut. Collet arrived from Thorpe, where he had landed on his way from Grimsby, on the D.F.W. No. 154. Mr. Mahl was passenger-carrying on the 80-h.p. Sopwith, and Mr. Waterfall was flying the Martinsyde.

On Wednesday Mr. Waterfall took Miss Cyril Orr Pattison on the Martinsyde. During this flight Mr. Waterfall started a spiral at 2,600 ft. After a couple of turns the machine spun and nose-dived for at least 100 ft., but on switching on the engine she came out of it all right; on landing a tyre burst. Mr. Mahl was up with passengers on the 80-h.p. Sopwith. Mr. Merriam made some flights for the Hepworth Cinematograph Co. No. 5 Sopwith "tabloid" arrived, and in the afternoon the Schneider Cup 100-h.p. monosoupe Sopwith, now minus floats, reached Brooklands. Mr. Mahl was again out carrying passengers. Major Raleigh (No. 4 Squad. R.F.C.) arrived from Reigate with Lieut. Mitchell on B.E. 299, and later left for Netheravon. Mr. Barnwell was out with passengers on the Vickers gun-carrier. Two Vickers pupils took their brevets, Messrs. Norman Wood Smith, at 1,250 ft., and J. B. T. Leighton, at 2,800 ft.

On Thursday, Mr. Jack Alcock made an hour's flight on the Sunbeam M. Farman. Mr. Mahl was also out. In the afternoon Mr. Collet exercised the D.F.W., and Mr. Pixton flew the 100-h.p. Sopwith. The 80-h.p. Sopwith "tabloid"

was also out, and M. Jullerot flew the Bristol School biplane. On Friday Mr. A. Dukinfield Jones made his first flights on the D.F.W. very successfully in a 25 mins. flight, reaching 2,000 ft. Lieut. Joubert de la Ferté arrived from Netheravon on a 80-h.p. Blériot. In the afternoon Mr. Knight flew the 70-h.p. Vickers School biplane, and Mr. Mahl was also out. During the day several of the machines for the Aerial Derby were out for tests, including Mr. Pixton on the 100-h.p. Sopwith and the 80-h.p. Sopwith, Mr. Waterfall on the Martinsyde, and Mr. Jack Alcock on the Sunbeam M. Farman.

The Perry-Beadle (45 Anzani) was taxi-ing. Two Bristol pupils, Lieut. Mills and Mr. Robert Lagrange, took their brevets in good style.

On Saturday Mr. Sippe was out on the Bristol Scout, Mr. Pixton on the 100-h.p. Sopwith, Mr. Barnwell flew the 50-h.p. Blériot. Later, Mr. Elsdon was climbing on the same machine when the engine stopped, and not having sufficient room to land, one wheel hit a small bush, turning the machine over on its back; the machine was somewhat damaged, but Mr. Elsdon escaped with a few scratches. Mr. Jack Alcock did another hour's flight on the Sunbeam M. Farman. Lieut. Joubert was out testing his Blériot. Mr. Waterfall and Mr. Sippe were out to test the weather before flying to Hendon, but decided it was too thick.

On Sunday Mr. Raynham arrived on the Show Avro (80 monosoupe Gnome), the engine failing just as he came within gliding distance of the track. Later, Mr. Mahl flew the 80 Sopwith, and Mr. Pixton a "tabloid." Mr. Gordon England also flew the 80, landing beautifully. Mr. Mahl's landings are now one of the most notable features of flying at Brooklands.

Flying at Hendon.

A good deal of flying was done at Hendon on Thursday. Mr. W. Rowland Ding arrived from France on his Handley Page biplane, 100-h.p. Anzani. Mr. Hamel flew to Cambridge in 30 minutes, where he picked up Baron de Gunsberg, and flew back in 45 minutes. Lord Carbery was busy assembling his Morane monoplane in readiness for the Aerial Derby. Mr. Noël flew the Maurice Farman, Messrs. Lillywhite, Birchenough, and Howarth flew box-kites, Mr. Goodden flew with a passenger on an 80-h.p. Morane, Mr. J. L. Hall was out on his Avro, and Mr. Carr flew the Grahame-White tractor biplane. Lieut. Hordern, of the Royal Flying Corps, arrived on a B.E.

On Saturday the Aerial Derby had to be postponed, owing to the weather, but there was much good flying, as is reported elsewhere.

The weather on Sunday was most unpleasant, but nevertheless there was a very good attendance. Mr. Noël flew on the Maurice Farman, Mr. Carr looped on "Lizzie," which Mr. Grahame-White also flew, and Messrs. Birchenough, Lillywhite and Howarth flew box-kites. Mr. Goodden made a high flight on the Morane, during which he was stated to have climbed 8,000 feet in ten minutes. Mr. Carr also flew the Blériot, and Mr. Grahame-White took Signor Caruso, the operatic singer, up on the Maurice Farman. Lord Carbery made a cross-country flight with a passenger.

Flying at Cambridge.

On May 21st Mr. Hamel flew at Cambridge, giving a display in his usual excellent style.

Flying at Eastchurch.

On Monday morning of last week Mr. Hamel arrived from Isle of Grain and did some looping. During the evening the Hon. Maurice Egerton flew for an hour on his 50-h.p. Short. He made similar flights on Tuesday, Wednesday, and Thursday. On Friday Mr. Alec Ogilvie flew to Harty and back on his 50-h.p. Wright.

Flying to Liverpool.

On Sunday of last week Mr. J. Elder Hearn flew from Brooklands to Liverpool on his 80-h.p. Blériot in order to keep a music-hall engagement. On the way he intended to alight at the Dunstall Park Ground at Wolverhampton, but missing it, he came down in the largest green field he could see. This turned out to be the local sewage farm, whence the machine was extracted undamaged, but with difficulty.

School Reports.

Brooklands.—At VICKERS SCHOOL: Instructors: Messrs. Barnwell, Knight, Elsdon and Webb. Pupils with instr: Maj Phillips (1), Lts Tennant (5), and Eberli (10), Messrs. Parker (10), Wilson (6), Steinbach (8), and Collins (4), and Lt Gillman (2). Alone: Maj Phillips (3), Lts Wood-Smith (7), Leighton (1), Tennant (2), Messrs. Wilson (8), Collins (5), Steinbach (1), Parker (3). Certificates taken: Maj Phillips, Lts Wood-Smith and Leighton, all on biplane. Machines in use: School biplanes.

At BRISTOL SCHOOL: Instructors: Messrs. Jullerot, Merriam and Stutt. Pupils with instr: Mr. Parker (1), Lt Richard (29), Mr. Lagrange (1), Mr. Jacques (1), Mr. Chambers (3), Mr. Eastwood (13), Mr. Greasley (18), Mr. Lucas (5), Capt Walcot (1). Strts or rolls alone: Mr. Lagrange (4), Lt Mills (6), Mr. Parker (5), Lt Richard (1), Mr. Eastwood (3). 8's or circo alone: Lt Mills (18), Mr. Lagrange (14), Capt Walcot (12), Mr. Jacques (5), Mr. Parker (16), Mr. Eastwood (5). Certificates taken by Lt Mills and Mr. Lagrange. Machines in use: Three school biplanes.

Eastbourne.—At EASTBOURNE AVIATION CO.'S SCHOOL: Instructor: Mr. E. L. Gassler. Pupil with instr on machine: Mr. A. Arnold. 8's or circo alone: Mrs. Salmon and Mr. Gwynne. Machines in use: 2 E.A.C. biplanes. Mr. Rowland Ding with Princess Ludwig of Lowenstein-Wertheim landed on Thursday morning, 8.45 a.m. Departed 2.45 for Calais. Mr. Fowler out on waterplane Tuesday and Wednesday. Mrs. Salmon flew twice alone on Friday morning, flying well and landing with excellent judgment.

Hendon.—At GRAHAME-WHITE SCHOOL: Instructors: Messrs. Howarth, Birchenough, Lillywhite and Barrs. Pupils with instr on machine: Messrs. Howitt, Peck, Robinson, Shepherd, Weber, Wyles, Boyesen, Carpenter, Liu, Lowe, Palmer, Winter, Cowley, Tapps, Gruning. Strts or rolls alone: Messrs. Cowley, Carpenter, Howitt, Winter, Weber, and Major Piercy. 8's or circo alone: Messrs. Moore, Howitt, Major Piercy and Mr. Carpenter. Certificates taken: Major Piercy and Mr. Moore. Machines in use: School biplanes.

At BRITISH CAUDRON SCHOOL.—Instructors: Messrs. W. T. Warren and René Desoutter. Pupils strts or rolls alone: Mrs. Buller, Mr. Macgregor. 8's or circo alone: Mr. Macgregor, Mrs. Buller. Machines in use: 2 Caudron biplanes, 35-h.p.

At HALL FLYING SCHOOL.—Instructors: Messrs. J. L. Hall, J. Clappen and Virgilio. Pupils doing strts or rolls alone: Miss d'Elsa (4), Messrs. A. Charig (6), Haines (4) (on Penguin), Arcier (26), Brookes (22), Gearing (24) (on Caudron), H. C. G. Allen (34) (on 35 Anzani-Blériot). Circo alone: A. F. Arcier (3 at 200 ft.). Machines in use: Avro and Caudron biplanes, Deperdussin and Blériot monos. Instructor Clappen out testing 28 Deperdussin. Mr. Rose on Penguin, damaged railings.

Shoreham.—At PASHLEY SCHOOL: Instructor: Mr. E. C. Pashley. Pupils doing 8's or circo alone: Messrs. B. F. Hale and W. Mortimer. Certificate taken: Mr. B. F. Hale. Machine in use: Farman type (50-h.p. Gnome). Mr. Hale passed for certificate excellently, gliding from 500 ft and landing within 20 ft of observers. Mr. H. D. Pashley, elder brother of Cecil and Eric Pashley, has joined the school.

EAST LONDON COLLEGE, University of London.

A Course of FOUR LECTURES

WILL BE DELIVERED ON

Wednesdays at 8 p.m., commencing Wednesday, June 3rd, 1914,

On AERONAUTICS

By Mr. A. P. THURSTON, D.Sc., F.R. Met. Soc., A.F. Ae.S.
(Member of Council Aeronautical Society of Great Britain).

SYLLABUS:

LECTURE I.—Stability and Control and Methods of Measurement
LECTURE II.—Distribution of Pressure and Velocity around Aerocurves and other bodies. LECTURE III.—The Resistance of Aerocurves and Aeroplanes and the Law of Dynamical Similarity. LECTURE IV.—The Propeller and its Relation to the Aeroplane.

These Lectures are open to the public FREE OF CHARGE.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.
For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W.
Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/- id. per word after.

SAMUEL FRANKLIN CODY, deceased.—Pursuant to Statute 22 and 23 Vic. cap 35, all persons having claims against the estate of Samuel Franklin Cody, late of Aldershot, in the County of Hants, aviator, who died on the 7th day of August, 1913, are required to send particulars to us on or before the 29th June, 1914. Dated this 23rd day of May, 1914.—**RUBINSTEIN, NASH & Co.**, 5 and 6, Raymond Buildings, Gray's Inn, London, W.C., Solicitors for the Administrator.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—**ARTHUR EDWARDS & CO., LTD.**, Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from **STANLEY, POPPLEWELL & CO.**, Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, **KING**, Registered Patent Agent, 165, Queen Victoria Street, London.

TUITION.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply **THE AERODROME, EASTBOURNE.**

THE CAUDRON SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best-equipped School, enquire what the Caudron pupils are doing.

THE BRITISH CAUDRON CO., LTD.,
London Aerodrome, Hendon.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition on biplanes of up-to-date construction.

THE success of **THE GRAHAME-WHITE SCHOOL OF FLYING** is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the **GRAHAME-WHITE SCHOOL**, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

PASHLEY BROTHERS, SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

HALL FLYING SCHOOL.

HALL FLYING SCHOOL.—TUITION—Flying and Constructional—given on

- A vro Biplanes.
- B leriot Monoplanes.
- C audron Biplanes.
- D eperdussin Monoplanes.

N.B.—Only tractor machines in use.

PASSENGER FLIGHTS.

Flying exhibitions.—Write at once for full particulars gratis to **HALL AVIATION Co., London Aerodrome, N.W.**

LIVERPOOL AVIATION SCHOOL, Waterloo, near Liverpool.—Tuition, passenger flights, exhibitions on Blériot monoplanes (3); Melly's infallible release gear; terms and prices on application.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIÈRE'S famous Integral Propellers hold all records; used by all leading aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD.**, 1B, Elthorne Road, Upper Holloway, N. Telephone: 912 North. Telegrams: "Aviprop, Uphole," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.**, 1, Queen Victoria Street, London. Tel. 834 Bank.

BLÉRIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE**, 166 Piccadilly, W.

EMPLOYMENT.

PUPILS required to assist in the designing of airships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—**WULFFING**, Aeronautical Engineer, 25, Hogarth Road, Earl's Court.

FITTER, turner, etc., experience of experimental work, seeks employment.—Box 568, c/o **THE AEROPLANE**, 166, Piccadilly.

BRAUN & CO., scientific engineers and model-makers, King's Cross, require skilled metal and wood workers.

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT Co., LTD.**, Hendon Aerodrome.

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three-ply, Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON & SONS, LTD.**, 130, Hackney Road. 'Phone 4770 Wall.

VOLK'S SEAPLANE STATION BRIGHTON FREE ACCOMMODATION FOR SEAPLANES

LUNCH in the "SUN PARLOUR" at HENDON.

Visitors to Hendon can be sure of good food well served in the new glass-sided "annexe" at the

"AERO-RESTAURANT"

Next the gate of the Aerodrome.

Hot Lunch from 1/6.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.

MOISTURE PROOF.

Write for Price List and Particulars—
MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MODEL aeroplanes, prices from 1s. 6d. to 25s. Strip rubber, 3/16 in. wide, 9d. per doz. yards; postage 1d. We stock everything for models. Send stamp for illustrated catalogue.—**MURRAY, SON & Co.**, 387, High Road, High Cross, Tottenham, N.

T. W. K. CLARKE & CO., Hampton Wick, Middlesex, for model aeroplanes and accessories. Rotary compressed air motors fitted with 16 in. propeller, £1 1s. Finest quality strip rubber, 1/4 in. and 3/16 in. wide, 1s. 4d. and 10d. doz. yds. Clarke carved propellers, 2d. per inch. Send for our lists containing over 120 items. Trade supplied.

If aviation interests you, buy a famous "Akerplane" model. Send stamp for 1914 list.—**AKERPLANE CO.**, 21, Hanover Crescent, Brighton.

STILL HOT FAVOURITES!

J. Bonn & Co., Ltd.,

97, New Oxford Street, London, W.C.,

The Leading House for

MODEL AEROPLANE ACCESSORIES.

BONN'S CELLULOID DISC WHEELS, 2 in., 1 1/4 in. and 3/4 in., 4d., 3d. and 2 1/2d. each respectively.

BONN'S GEAR WHEELS for making Geared Motors, etc., 1 in., 1 1/8 in. and 3/4 in., 6d., 5d. and 5d. respectively.

BONN'S FABRIC, 36 in. by 18 in., 1/3; 36 in. by 36 in. 2/6; weight per sq. yd., 7/8 oz.

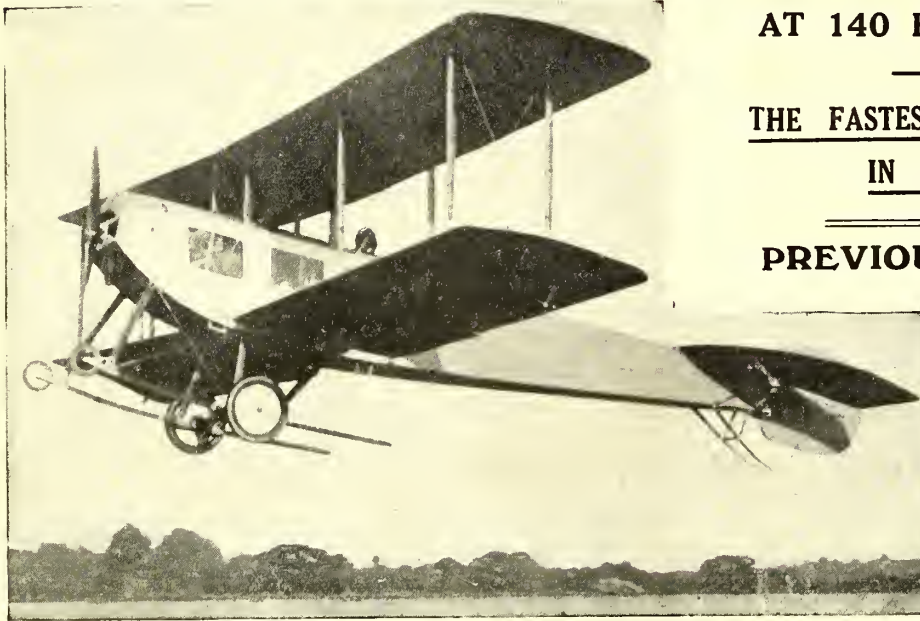
Catalogue on Application

THE LATEST SOPWITH SUCCESS:—

WINNING OF THE SCHNEIDER CUP

AT 140 KMS. PER HOUR.

**THE FASTEST HYDRO-AEROPLANE
IN THE WORLD.**



**PREVIOUS RECORDS on
the preceding type
of SOPWITH
BIPLANE (80 h.p.
Gnome).**

**British Height Record
(Pilot alone) 11,450 ft.**

**British Height Record
(Pilot and 1 Passenger)
12,900 ft.**

**British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.**

**WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.**

**ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.**

THE SOPWITH AVIATION CO. Ltd.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone: 1777 & 1343 KINGSTON. **Offices and Works : KINGSTON-ON-THAMES.**

Telegrams :
"SOPWITH, KINGSTON."



WHITSUN AT HENDON

8th London Aviation Meeting.

Sat., May 30th. Sun., May 31st. June 1st, (Bank Holiday) (12 noon). (Three Days) Cross-Country Race for the Giesler Trophy. Seven Air Races. Parachute Descent from an Aeroplane by W. Newall on Saturday.

Thur., June 4. **ALTITUDE CONTEST.**

"LOOPING" & AIR RACING

Every Thurs. and Sat. from 3 p.m.

Special Displays every Sun. aft.

Passenger Flights daily from

£2 2s. 0d.

Admission 6d., 1s., 2s. Children Half-price.
Motors 2s. (Inc. chauffeur)

**Sat., June 6. AERIAL DERBY (post-
poned from May 23rd). See the start
(4.15 p.m.) and finish (about 5 p.m.) at
Hendon (weather permitting).**

Admission 1s., 2s., 5s., 10s. Motors 5s. and 10s.

Write to Dept. A. London Aerodrome
Offices, 166 Piccadilly, London, W., for a
free copy of the little booklet entitled
"Wonderful Flying at Hendon", which
contains numerous illustrations, a complete
list of fixtures for 1914, and particulars
of passenger flights, routes to Hendon,
Season Tickets, etc., etc.

London Aerodrome, Hendon, N.W.

"THE AEROPLANE," JUNE 4, 1914.

THE AEROPLANE

12
WEEKLY

Edited by C. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, JUNE 4, 1914.

No. 23

THE SEAPLANE SEASON.



Mr. F. B. Fowler, of the Eastbourne Aviation Co., Ltd., on a Henri Farman (80-h.p. Gnome), starting with a passenger from Eastbourne beach. Seaplane passenger trips are now quite the fashionable amusement at such seaside resorts as are favoured by visits from such machines.

The "Bristol" **Flying Schools**

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

HANDLEY PAGE AEROPLANES.

The ease with which HANDLEY PAGE aeroplanes may
be controlled is evidenced by the record—

■ ■ ■ ■ ■ ■ ■ ■

APRIL 28th.—Mr. W. Rowland Ding takes his pilot's certificate.

MAY 21st.—100 h.p. Handley Page biplane, piloted by Mr. Rowland Ding, flies to Calais via Eastbourne and returns to Hendon.

MAY 26th.—100 h.p. Handley Page biplane, piloted by Mr. Rowland Ding, flies from Hendon to Bath.

HANDLEY PAGE, LTD.

Contractors to the War Office.

72, VICTORIA STREET, S.W.

Telegrams: "HYDROPHID" LONDON.

Telephone: 2574 VICTORIA.

Works:
Cricklewood.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE**166, Piccadilly, W.**

Telegraphic Address: AILERON, London. Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.			ABROAD.		
	s.	d.		s.	d.
3 months, post free	1	8	3 months, post free	2	9
6 " " " "	3	3	6 " " " "	5	6
12 " " " "	6	6	12 " " " "	11	0

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeromantics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

On Things in General.

At the moment there does not seem to be any topic of absorbing interest to rivet the attention of those who follow closely the progress of aviation in this country, but there are two entirely dissimilar matters which seem to call for a certain amount of comment, and may therefore be dealt with now as well as any other time.

First of all there is the International Conference on what the daily papers love to call "The Liberty of the Air." The conference, called on the initiative of Prince Roland Bonaparte, President of the Fédération Aéronautique Internationale, met in Paris last month. It consisted of delegates from fourteen countries subscribing to the F.A.I., and its ostensible object was to persuade the Governments of the various Powers to consider mutually the question of suppressing or reducing in extent the zones prohibited to aircraft, and to propose that the provisions of the Franco-German Agreement concerning aeroplanes and airships crossing the frontier should be extended to other countries.

The idea of abolishing prohibited areas is, of course, most laudable. So is the idea of abolishing armaments, fortifications, frontiers, police, and every other impediment to the philosophic anarchist's ideal of every man doing just exactly what he likes. Unfortunately, to realise such an ideal one has to start by recreating human nature. The philosophic anarchist is, when translated into ordinary English, the philosopher who is able to dwell at peace with other philosophers without being governed. Unfortunately he is too often confused with the common or underworld anarchist, who is "agin the Government" on principle—the fanatic so perfectly defined by the immortal Mr. Dooley, when he said: "An anarchist, Hinissy, is a man who does what he thinks God Almighty'd do if he knew the facts."

Unfortunately, many human beings run to anarchy without the philosophy, and the bulk of humanity consists of mere animals who have to be kept in order, hence the need for police, governments, frontiers, and prohibited areas. One cannot, obviously, permit assorted aviators, foreign or national, to fly unimpeded over fortifications, or to land when and where they please. The mere fact of a man becoming a "sympathique aviateur" does not prevent him from smuggling, or selling photographs of fortresses to foreign nations. In fact, after the recent lessons in obedience to those set in authority over us (*vide* the Church Catechism), as illustrated by the respectable Conservative Party in the House of Commons, and their adherents, or inspirators, in Ulster, one begins to wonder just what government, law, and order really does mean, and whether there is anyone who can be relied upon not to break any laws which annoy him or her.

Quite an amusing example of heredity run riot was provided by the President of the Conference, Prince Roland Bonaparte, who in his inaugural speech said that the establishment of prohibited zones was an anachronism, and entirely contrary to the lessons of history. He is further reported as saying that such legislation was equivalent to the prohibition of international aerial traffic; and that aviators only demanded that they should be allowed to circulate freely in the air in time of peace without exposing themselves to vexatious and tyrannical penalties. I

forget just what relation Prince Roland is to Napoleon the Great, but the Bonaparte blood seems to have become curiously diluted. The Great Napoleon also believed in abolishing frontiers, but by the simple process of marching his armies over them and bringing all Europe inside his own ring-fence. Prince Roland is evidently a believer in the nearness of the millennium. He seems to forget that Armageddon must come first, and that, if the lion does lie down with the lamb at the present day, the lamb is going to be inside.

International Complications.

Another comic note was struck at the Conference by the fact that the only nations sending delegates officially from their Governments were France—as was natural and courteous for the country in which the Conference was held—and Holland and Belgium. The two latter countries are, of course, very much lambs alongside the German lion, and at the outbreak of "The War" will simply be occupied by German troops, unless our Navy seizes their ports first. The German strategic railways run along the Belgian and Dutch frontiers, more than the French frontier, curious as it may seem.

Aerially, Holland and Belgium simply do not count. They merely remind one of the newly landed American travelling up from Plymouth on the "Flying Dutchman," hanging onto the arm of his seat and looking anxious as the train did a steady eighty down Burescombe Bank. Of him, a much-travelled Englishman asked, "Are you afraid of the speed? Remember, we lay our railways properly in England, and it's quite safe." "Speed!" replied the Yankee, "I ain't afraid of the speed! I'm only afraid the engineer 'll forget to shut off in time, and 'll run over the edge of your darned little island."

The danger to the aviator flying over Holland or Belgium is that, if he gets going with the wind, he will probably fall over the edge of either country into Germany or France without knowing it. Presumably, it was a desire to avoid minor international complications of this nature which caused them to send official delegates.

Of course, the existing prohibited areas of most countries require certain modifications, such as those recently made here, which now leave a clear road across the Thames at Barking, and make it possible for properly accredited British pilots to fly over the Solent. Also, there should always be certain clear roads across the frontiers of every country for long-distance fliers, provided their intentions to follow one road or other have been duly notified beforehand; but to talk of "circulating freely in the air" is simply childish. We are not even allowed to "circulate freely" on our own roads. Look at any average aviator's motor licence if you have any doubt about it.

On Topsy-Turvy Flying.

Certain incidents which have occurred recently indicate the advisability of discussing the subject of upside-down flying in general. It may be remembered that, when "looping" was first introduced as a public spectacle, THE AEROPLANE strongly deprecated the turning of serious aviators into aerial acrobats—even "respectable acrobats" of the class so touchingly portrayed by Miss Ethel Levey in the first Hippodrome revue. However, with that faculty for leaving a line of retreat open—some critics

call it inconsistency—on which we rather pride ourselves on this paper, it was then suggested that the time might come when the ability to “loop” might form part of the acceptance tests of any Service aeroplane, the idea being that it would give pilots confidence in their machines if it were demonstrated to them by someone else that their mounts would recover quickly from any extraordinary attitude into which they might be thrown. Such knowledge must inevitably relax much of the strain—and so prolong his career as an aviator—on a pilot’s nerves, for it proves that he need not keep eternally on the look-out to correct every movement when flying.

Of course, a machine which “loops” well may be spirally unstable, and so liable to “spin,” but that is an easily-corrected fault in design, and a good looping machine is obviously easily controllable, which, after all, is a good deal in its favour.

It seems, therefore, that a looping test might well form part of the Army’s reception programme of all “personal control” machines, as apart from “inherently stable” aeroplanes, which latter should be compelled to show their inability to loop, which is just as important. Of course, as Mr. Handley Page demonstrated very neatly at an Aeronautical Society meeting some time ago, an inherently stable machine will loop automatically if launched at a high enough speed, but it will, presumably, be impossible for the big stable machines ever to reach a speed at which they will loop. At any rate, one does not look forward with equanimity to the spectacle of a 200-h.p. Short or Wight seaplane looping with complete wireless plant and fuel for five hours’ flying on board, and even the Army’s gun-carriers would inspire awe under similar circumstances. Still, one never knows, and it may be the proper thing at future Royal reviews for each armed machine to loose off a hopper of blank from a machine-gun as it loops gracefully past the saluting base, much as a Moorish horseman blazes away his magazine while standing on his saddle at full gallop.

Nevertheless, the recent loopings by Mr. de Havilland and Mr. Spratt on B.E.s, which presumably had the latest type solid stretcher ribs and the heavier tails and rudders, will do much to restore the confidence of R.F.C. pilots in these machines if adequately strengthened, and I know the Navy has a much truer estimate of the value of Caudrons since Mr. Goodden performed so impressively at Eastchurch.

Another Problem.

All of which brings one to the question of what is to be done about certain machines which are excellent flying machines, up to a point, but are distinctly dangerous if they go past that point. The Henri Farman, for example, loop as well as anything in the air, and are obviously controllable in any position, yet certain really good pilots say they never feel at home on them, so evidently controllability alone does not suit everybody. On the other hand, the Maurice Farman, which are very much easier to fly, and are generally considered safer for indifferent pilots, are credited with the quality of refusing to come back if once dived past a certain point.

Only a few weeks ago a Maurice Farman, which was admittedly out of truth laterally, got out of control in a spiral descent and developed a nose dive, landing on its elevator, though piloted by one of the best fliers in the Army, who fortunately escaped being killed, as did his passenger.

A Weird Experience.

Something over a month ago a naval officer had a still more extraordinary experience, which at this date may be related in detail. He was flying at about 4,000 feet when the crankshaft of the Renault motor broke. Being at that time in the clouds, he did what he had always been taught to do, he pushed the nose of the machine down to keep proper controlling speed on her. When he sighted land the machine was diving steeply, and in spite of his best efforts refused to flatten out. The speed grew greater and the dive grew steeper till after another 1,000 feet or so the machine turned clean over onto her back, the upper plane in doing so following the outside of the curve. In this position she seemed to have an inclination to parachute down, and did so for about 2,000 feet. The pilot resolved to unbuckle his belt and climb onto the chassis in the hope that the rest of the machine would break his fall when she struck. While he was making up his mind, and still apparently hugging the control handles to his chest, the nose of the machine again

began to drop, and, completing the lower part of the S curve, she came right side up. As she righted herself the pilot found he was only 100 feet or so above the roofs of Eastchurch, and the only clear ground within reach was a small garden beside the road. He made for this, prepared to smash into the fence at the end of the garden, but as he reached the near end he found telegraph wires in front of him. The machine smashed through them, the wires acted as a brake, and she pancaked gently into the garden, fetching up about four feet from the opposite end, with her tail resting on a small bush, and the upper planes overhanging the fence on each side. The total damage was a slight tear in the tail and a wire broken by the pilot treading on it as he jumped out somewhat hurriedly. A careful study of the situation showed that there was no other possible position in which the machine could have been placed in the garden even with the help of a derrick without its being damaged somehow.

Now the cause of these dives seems worth studying. Recollect firstly that the older type Maurice Farman has a flat front elevator, and a biplane tail which is lifting a considerable amount of weight. This loaded tail means that while the major portion of the total weight is carried by the main planes, a considerable minor portion, of which the centre of gravity is a long way behind the main planes, is resting on the tail. Now, so long as the machine is comparatively horizontal, the weight of that minor portion tends to keep the tail down, exercising a leverage, or righting couple I believe it is called, at a certain distance behind the centre of gravity of the machine as a whole, which is the point on which it pivots. The force of gravity acts vertically, and as the tail goes up the length of that leverage lessens, till when the machine is standing vertically on its nose the leverage tending to pull the tail down ceases to exist, the weight of what I have called the minor portion acting directly downward through the central pivoting point.

But, remember, as the tail goes up the speed increases, and consequently the lift of the tail increases enormously in proportion, so that it has more and more tendency to lift higher at the same time that the weight trying to pull it back becomes less effective. If the pilot lets the machine get past a certain critical point, the lift of the cambered tail apparently overcomes or blankets the flat rear tail-elevator flap, and the front elevator, being a flat pivoted surface, simply pushes through the air, acting perhaps as a brake, but powerless to push the nose outwards. In this position it seems possible to keep the machine balanced, but it is not possible to flatten out into a proper flying attitude.

It seems probable that in an old machine, in which the main planes have gone out of truth owing to lack of attention, and so have lost some of their lift, while the tail being smaller and more closely braced has retained its shape, this tendency to lift over may be greater. Also this property is not peculiar to the Maurice Farman, as it pertains to all lifting-tail box-kites. It is only more dangerous in the Maurice Farman because that machine is so excellent a flier in other respects. Also there will be the same tendency in any machine which is not inherently stable longitudinally, though it may be counteracted by fitting very big elevators.

There seems to be only one way of getting out of this position with a Maurice Farman, or any similar machine, namely, deliberately to push the elevator forward so that the machine turns quickly on her back, and then, while there is still some forward way on, to pull the elevator sharply back again. With the reduced speed, the front elevator pushes the nose down, the rear elevator flap, being then underneath the tail, acquires a lift, and the machine, all being well, comes out at the bottom of the S, always provided the pilot does not allow her to pick up speed on the downward portion of the S.

This is not a trick which should be tried at anything under 6,000 feet, and I do not recommend it even then, but anyone who does find himself diving on a Maurice Farman, and unable to pull back, may perhaps save his life and that of his passenger, if any, by recalling the experience of the naval officer aforementioned. Prevention is better than cure, and it is better not to dive at all on the old “mechanical cow” type Maurice Farman.

What the newer type, commonly known as the “short-horn,”



LEARN
TO
FLY



AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS LIMITED,

Aviation Department, Vickers House,
Broadway, London, S.W.

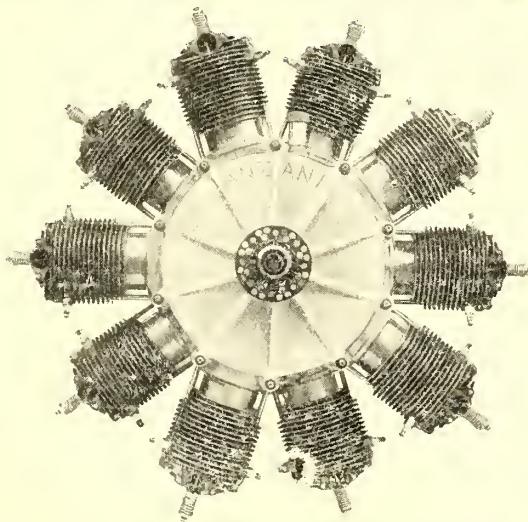
BRITISH ANZANI

AERO

ENGINES

The 125 h.p.

10-Cylinder



Wires :
"Anzani, Piccy., London."

'Phone :
280 Gerrard

THE BRITISH ANZANI ENGINE CO., LTD.

30, REGENT STREET, PICCADILLY CIRCUS, LONDON, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

does under similar circumstances, remains to be seen, for it also has a cambered tail which carries a good deal of weight, though it also has an enormously long elevator flap. Perhaps some of our scientists will work it out and let us know before anyone has been killed in solving the problem for himself.

Meantime, I have a great affection for the "mechanical cow," which seems remarkably safe when properly flown by an experienced pilot like M. Verrier, or even by quite an ordinary pilot who keeps his head and does not try to do too much.

Apart, however, from the really scientific uses of looping and topsy-turvy flying, such as I have indicated, I am still convinced it is a uselessly dangerous pastime, because a badly executed

loop, followed by a side fall or tail slide, stresses a machine unfairly, and the more looping there is done by good pilots on good machines, the more imitation of them there will be by bad fliers on bad machines, and the higher will be the death-rate. To such people one is tempted to quote the classic phrase of the Scottish divine, who warned his flock against quite another form of amusement, "the risks of which are exceeding great, the pleasures of which endure but a short while, the attitudes of which are reedeec'lous, and the cost of which, I am credibly informed, is practically proheebitive."—I gather that he referred to an epidemic of tango dancing which had broken out in his parish, but the words fit in other connections.—C. G. G.

The Royal Aero Club.

Official Notices.—Coming Events:—

June 6th.—Aerial Derby. Hendon Aerodrome.

June 10th.—Balloon Race. Hurlingham Club, Fulham, S.W.

June 27th.—Balloon Race. Hurlingham Club, Fulham, S.W.

July 11th.—International Correspondence Schools Race, London-Paris-London. Hendon Aerodrome.

July 11th.—Balloon Race. Hurlingham Club, Fulham, S.W.

August 1st to 15th.—"Daily Mail" £5,000 Circuit of Britain Race. Starting from Southampton Water.

August 22nd to 29th.—Gordon-Bennett Eliminating Trials. Salisbury Plain.

Sept. 20 to 29th.—Gordon-Bennett Aviation Race. Buc, France.

At the Committee meeting on May 26th the following aviators' certificates were granted:—780, Frazier Curtis (Caudron biplane, Caudron School, Hendon), May 11th, 1914 (subject to permission of Aero Club of America); 781, 2nd Lieut. John Aidan Liddell (Vickers biplane, Vickers School, Brooklands), May 14th, 1914; 782, Reginald Max Maximilian Murrey (Vickers biplane, Vickers School, Brooklands), May 14th, 1914; 783, Michael Geoffrey Smiles (Grahame-White biplane, Grahame-White School, Hendon), May 14th, 1914; 784, Victor Mahl (Sopwith biplane, Brooklands), May 14th, 1914; 785, Benjamin Herbert Piercy (Grahame-White biplane, Grahame-White School, Hendon), May 18th, 1914; 786, Bernard Francis Hale (Farman type biplane, Shoreham), May 18th, 1914; 787, Major Edward H. Phillips (Vickers biplane, Vickers School, Brooklands), May 19th, 1914; 788, Capt. Alfred Garnet Moore (Grahame-White biplane, Grahame-White School, Hendon), May 19th, 1914; 789, Lieut. Norman Wood-Smith (Vickers biplane, Vickers School, Brooklands), May 20th, 1914; 790, Lieut. John Burgh Talbot Leighton (Vickers biplane, Vickers School, Brooklands), May 20th, 1914; 791, Lieut. Gerald Desmond Mills (Sherwood Foresters) (Bristol biplane, Bristol School, Brooklands), May 22nd, 1914; 792, Robert Eugene Lagrange (Bristol biplane, Bristol School, Brooklands), May 22nd, 1914 (subject to permission of Aero Club de Belgique.)

The Accidents Investigation Committee.

Report No. 22 on the fatal accident to Lieut. Hugh Frederic Treeby, when flying at the Central Flying School, Upavon, Wilts, on Thursday, March 19th, 1914, at about 10.20 a.m.

Brief Description of the Accident.—Lieut. Hugh Frederic Treeby was flying a Maurice Farman biplane fitted with a 70 h.p. Renault engine, at the Central Flying School, Upavon, on Thursday, March 19th, 1914, at about 10.20 a.m. He had been flying about twenty minutes and was approaching the alighting ground at a height of about 350 feet. A left-hand turn had been completed in a normal manner, apparently with the idea of landing into the wind. The engine was throttled down and the aircraft in a position for a straight glide to the ground. Suddenly, the aircraft nose-dived, fell into some trees, and was completely wrecked. The pilot, who was found underneath the engine, was killed.

From the consideration of the evidence the Committee regards the following facts as clearly established:—1. The aircraft was built by Messrs. Farman in Paris, and was delivered new to the Central Flying School in July, 1913. 2. The wind at the time of the accident was 10 to 15 m.p.h., and somewhat

gusty. 3. The pilot had previous experience on other types of aircraft and had flown the Maurice Farman biplane several times, including one flight the same morning. 4. This particular aircraft had been flown previously the same morning by another officer and had been found to be in perfect order. 5. The aircraft was fitted with an engine revolution indicator and air speed indicator. 6. The controls were found to be in working order after the accident.

Opinion.—The Committee is of opinion that the accident was due to the aeroplane having lost flying speed owing to an error on the part of the pilot.

[It is to be regretted that no comment is made on the liability of the Renault engines on propeller biplanes to stop in the course of a steep glide owing to failure of the petrol to reach the carburettor. The only method of starting them again is by almost stalling the machine in flattening out the gliding path, and such a manoeuvre may well have caused Mr. Treeby's accident. At the inquest it was stated that the propeller was broken in a way which showed that it was stopped when it hit the trees.—Ed.]

Head Resistance Tests.

In a recent issue of "Engineering" Mr. A. P. Thurston gives the results of a series of experiments dealing with the head-resistance of bars, struts and wires, made by him at the suggestion, and partly at the expense, of the Aeronautical Society. One curious fact brought to light in these experiments is that a given length of bar has a smaller head resistance if cut up into a number of short lengths than if all in one. This is, of course, due to leakage round the end, and, unfortunately, struts in aeroplanes are usually shielded against such leakage by the parts they are fitted between, hence this otherwise useful property cannot be used to much advantage.

His results also show resistances varying at a greater and a less rate than the square of the velocity—greater when the thickness of the strut or bar is large and less when it is small. Further, in contradiction to many other experimenters, Mr. Thurston finds in the case of bars of what are usually termed streamline section, an arc of a circle followed by two sides of a triangle, that the resistance is less sharp end forward than blunt end forward.

The experiments appear to suggest that the constant K in the well-known resistance formula is itself a function of the velocity and also of the actual dimensions of the body, whose resistance is in question, a suggestion which is supported by certain theoretical reasons.

The article contained several other matters of some interest and is illustrated by an excellent series of curves.

Wills and Bequests.

According to the "Times" newspaper, Mr. Samuel Franklin Cody, who was killed on Laffan's Plain on August 7th last, left estate valued for probate at £6,105, of which the net personally amounts to £4,259. He died intestate, and left no real estate. His companion in the flight who was killed at the same time, Mr. William Henry Brereton Evans, the Oxford University and county cricketer, left estate of the gross value of £2,308. The same paper states that the principal estates previously recorded of airmen are those of Mr. Wilbur Wright, \$279,298, Mr. H. J. D. Astley, £65,601; the Hon. C. S. Rolls, £30,935; Mr. C. S. Grace, £5,398; Mr. D. L. Allen, £6,924; Lieut R. A. Cammell, £3,412; Mr. R. C. Fenwick, £2,639; Lieut. C. A. Bettington, £3,492.

THE BEARDMORE AUSTRO-DAIMLER DESIGN AERO ENGINE

FITTED TO LOHNER BIPLANE

—: WINS THE:—

SCHICHT PRIZE

OFFERED BY THE SCHICHT CO. OF AUSTRIA, TO THE WINNER
— OF A CIRCULAR FLIGHT EXTENDING OVER THREE DAYS —

— PROVING IT YET AGAIN TO BE —
THE WORLD'S FINEST AEROPLANE ENGINE

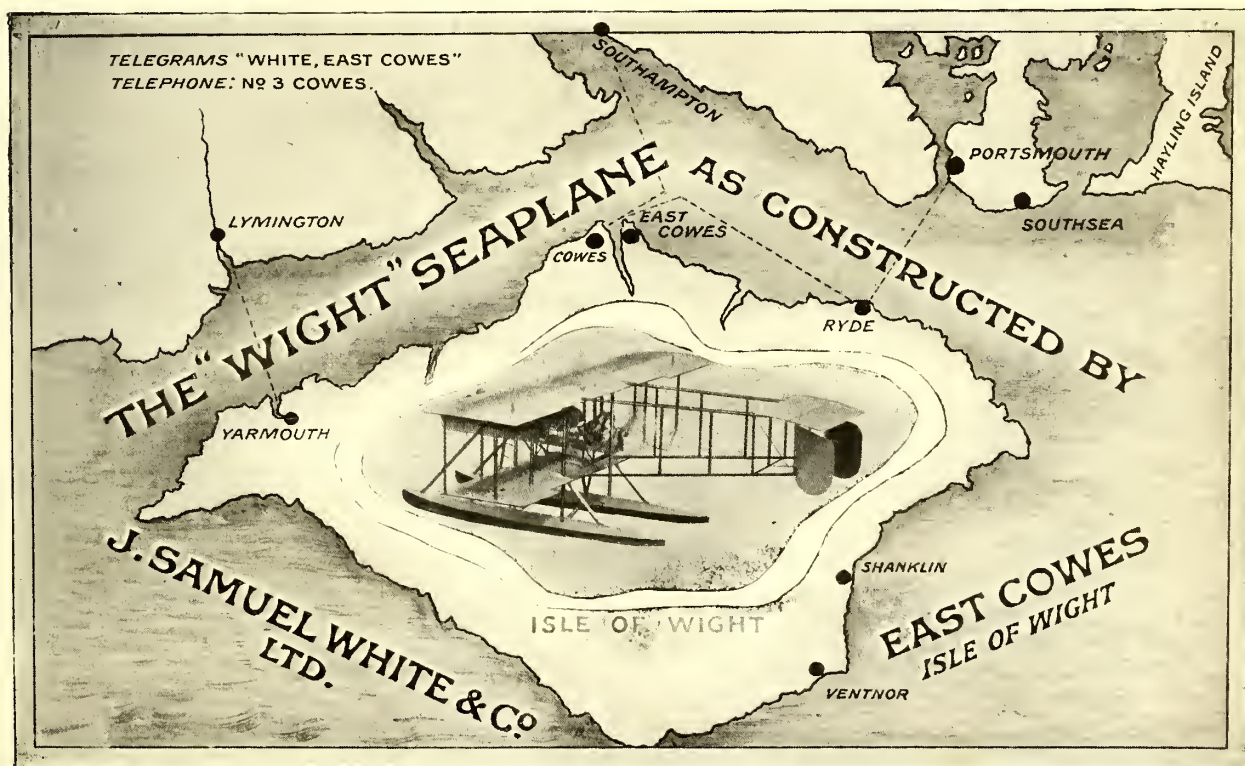
BEARDMORE AUSTRO-DAIMLER AERO ENGINE, LTD.

Selling Representatives:—

AUSTRIAN-DAIMLER MOTOR CO., LTD.

112, GREAT PORTLAND STREET, LONDON, W.

C.D.C.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Technical Report of the Advisory Committee on Aeronautics for 1912-13.

BY W. H. SAYERS.

The portentous blue-book bearing the above title has just been published and contains the official report and appendices giving accounts of researches made at the National Physical Laboratory and at the Royal Aircraft Factory during the period dealt with.

Amongst the subjects dealt with are certain researches on wing sections dealing with the effect of changing the position of the maximum camber of the section, the thickening of the edge and the thickening of the wing towards the trailing edge resulting in the production of the wing section known as R.A.F.6—full particulars of which and of the behaviour thereof are given. R.A.F.6 appears to be a wing section of considerable merit, giving a large lift coefficient, a high lift to drift ratio and providing plenty of room for deep spars.

The effect of warping a wing was investigated and the variations of rolling moments and of drift determined. These experiments show that with a machine flying steadily at a fine angle of incidence (about 1 deg.) warping produces a large rolling moment, but no appreciable steering effect, but that as the speed decreases and the angle of incidence increases the rolling moment increases and the steering effect becomes large till after certain limits are passed the rolling effect becomes reversed—i.e., warping rolls the machine the wrong way while the steering effect becomes abnormal.

Experiments on wing sections with turned-up trailing edges (reversed curvature) were also made, leading to the result that a practically stationary centre of pressure could be assured at the expense of some 12 per cent. loss in lift to drift ratio.

The distribution of pressure over the surface of an aerofoil was investigated and the question of the corrections necessary in applying model results to full size machines are dealt with.

Mr. T. W. K. Clarke contributes a report on the fin effect of propellers, which is shown to be considerable, and tests on models of aeroplane bodies giving head-resistance, lift and side

pressure values at varying angles were made—the latter of particular interest as showing positions of centre of side pressure very far forward. Similar tests on struts and wires and other parts of aeroplanes should also furnish useful data for designers.

A considerable amount of space is devoted to discussions of stability by Mr. Bairstow, who has himself already communicated most of his results to the Aeronautical Society.

The methods of calculation of stresses in aeroplane structures, tests of materials, and a consideration of the tests which should be applied to completed machines are dealt with in some detail.

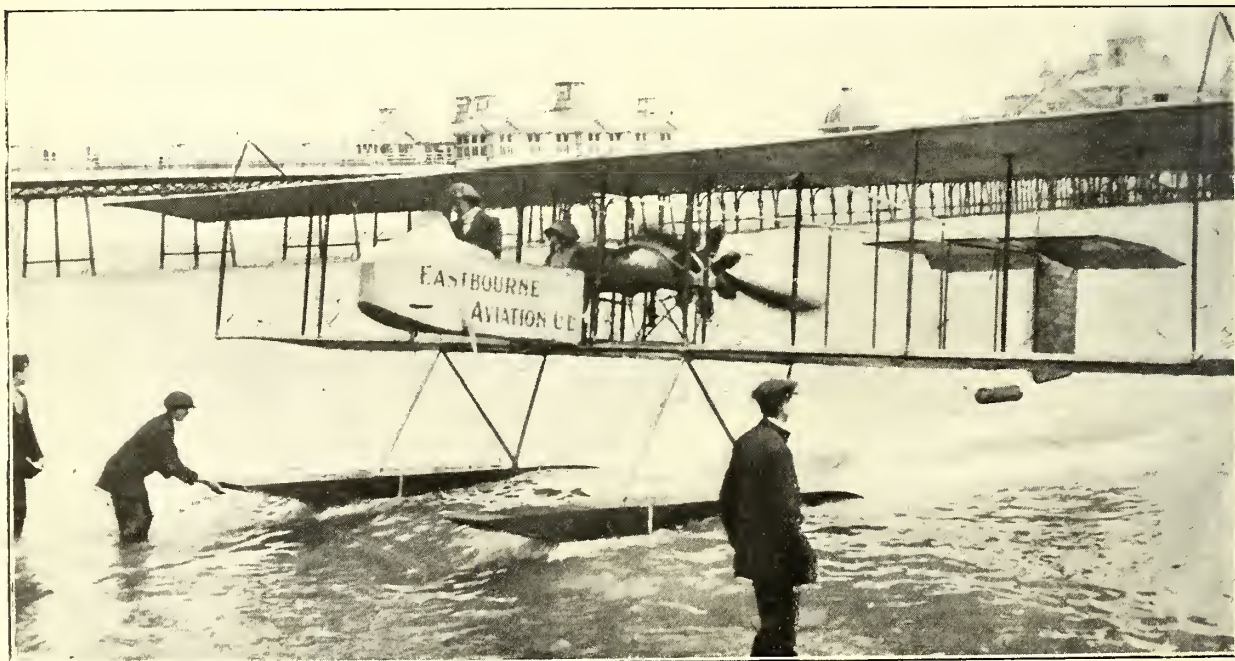
The stresses in fabric and on the attachment of fabric to the wing structures also receive consideration, as do tests of actual fabrics and of "dopes."

Tank tests of model floats for hydroaeroplanes giving useful information are included.

A report of experimental work carried out at the R.A.F., including various experiments connected with airships and an account of various modifications of the B.E. type, and of tests made therewith—if somewhat out of date—is distinctly interesting, particularly that series of trials in which the position of the spars of a B.E.'s wings were varied, leading to variations in the "self-warping" habits of the machine.

Quite a considerable amount of meteorological data has been collected and included, and it is to be hoped that this branch of the work will be prosecuted with growing vigour.

The volume contains an immense amount of matter—some highly indigestible, very badly arranged, and much of it distinctly out of date, but extremely interesting in places. It is quite impossible to deal in any completeness with its various contents here and now, but after a sufficient interval wherein to digest it one hopes to be able to present some of its more valuable contents in a more easily understood form.



Seaplaning at Eastbourne.—Mr. F. B. Fowler coming ashore with a passenger, near the pier, on a Henri Farman.

Naval and Military Aeronautics.

GREAT BRITAIN.

NAVAL.

From the "London Gazette," May 26th :—

Admiralty, May 22nd.—The following Staff Surgeon has been promoted to the rank of Fleet Surgeon in his Majesty's Fleet.—A. G. Eastment.

Dr. Eastment, whose promotion to Fleet Surgeon is notified above, was appointed last year to medical charge of Calshot Air Station, where he is now replaced by Dr. C. J. O'Connell, as notified last week. Dr. Eastment's well earned promotion will give pleasure to all who know him.

* * *

The following communication was issued to the Press by the Admiralty on Tuesday, May 26th :—

It has been decided to suspend the searching operations by flotillas and aircraft which have been in progress for the last 48 hours for Mr. Gustav Hamel.

In relinquishing this quest the Admiralty desire to place on record their recognition of the services rendered to British aviation by the missing airman. He was without question the foremost exponent in these islands of an art whose military consequence is continually increasing.

His qualities of daring, skill, resource, and modesty merited the respect of those who pursue the profession of arms; and his loss, if this must be accepted, is received with deep regret by the officers and men of the Naval Wing of the Royal Flying Corps.

* * *

On Friday last, Mr. Winston Churchill, piloted by Major E. L. Gerrard, R.M.L.I., of the Central Flying School, flew from Upavon to Portsmouth, landing in the drill-field at Hilsa Barracks about 11 a.m. Mr. Churchill then proceeded by car to the dockyard to join the "Enchantress."

* * *

At Eastchurch on Monday there was little flying. Owing to the high wind only one machine was out (Avro No. 160, 50-h.p.). On Tuesday No. 104 Sopwith (80-h.p.), 153 Bristol tractor, 49 B.E., and 70 Maurice Farman were flying. On Wednesday No. 31, Henri Farman, flew to Isle of Grain; No. 50 B.E. was out and No. 70 Maurice Farman came over from Grain. On Thursday No. 31 Henri Farman flew to Whitstable. No. 70 Maurice Farman was the only other machine out. On Friday No. 70 Maurice Farman returned to Isle of Grain. No. 31 Henri Farman, No. 2 Short (50-h.p.), No. 49 B.E., No. 45 Caudron (50-h.p.) were out. No. 64 Short (50-h.p.) flew to Whitstable, and Lieut. Marix, R.N.R., on Sopwith No. 104 (80 Gnome) flew to Oxford, whence he returned on Saturday, when no other flying took place.

* * *

Owing to an error in transcription it was made to appear last week that the seaplane piloted by Commander Samson which was damaged off Dover on Sunday of last week was a Short tractor, whereas it was in fact a Farman.

* * *

At Calshot, on Monday, the 90-h.p. Austro-Daimler Sopwith bat-boat and the Wight machines were out during the day, and on Tuesday the Maurice Farman and the 200 Salmson-Sopwith gun-carrier flew. On Wednesday the 200 Salmson-Sopwith bat-boat, the 200 Salmson-Sopwith gun machine, and the Wight seaplane all flew. On Thursday the Maurice Farman and the 90 Austro-Daimler Sopwith bat-boat were out between showers. On Friday the Wight, the Maurice Farman and the 200 Salmson-Sopwith gun-carrier were out. During the evening an Army machine flew over Calshot and Hamble towards the North at a height of about 3,000 feet, and the Sopwith Show bat-boat was out.

During the afternoon Lieut. Edmonds, R.N., flying the Wight machine failed to get her out of a spiral glide and smashed the lower plane.

* * *

The officers at the Dundee Base were out on Monday forenoon. The machines used were Shorts (100-h.p. Gnomes), Nos. 74 and 75. Major Gordon, R.M.L.I., on No. 74 with

A.M. Hamilton and Capt. Kilner, R.M.L.I., with C.A.M. Usher on No. 75 flew north for Aberdeen. A descent was made at Stonehaven for about five minutes, Aberdeen being reached in seventy-five minutes from Dundee, where Capt. Kilner had one of his floats punctured by some wreckage. This was put right with the help of some fishermen, and the return to Dundee was commenced at 2.30 p.m. and the pilots landed an hour and a half later.

On Tuesday morning flying was started early and a lot of practice work with submarines was done. At 10.30 Major Gordon went off in Short No. 74 with Lieut. Rendall and C.A.M. Shaw as passengers to look for submarines at the mouth of the Tay for over an hour. Capt. Kilner with Lieut. Bonham-Carter as passenger on Short 77 flew out to the scene of operations. A descent was made in the open sea, and as the passenger was restarting the engine it backfired and the starting handle was jerked overboard. The destroyer "Ettrick" took the seaplane in tow and brought her back to Carolina Port. Later Major Gordon again flew Short No. 74 with A.M. Walker, and after circling St. Andrews flew up the Tay to Newburgh, where a short stay was made and Capt. Kilner made two flights in No. 77, carrying A.M. Willburn and Lieut. Randall as passengers.

On Thursday Major Gordon set off for St. Andrews on Short No. 74 with Lieut. Curtiss, R.N. Capt. Kilner had some trouble in getting the required "revs" out of his Gnome, but at the second attempt gave a long display of good flying east of Broughty Ferry. No more flying was done during the week.

Surveyors have been busy during the past week or two at the Carolina Port, and it is learned that an improved concrete slipway will shortly be commenced and also a large permanent shed, a workshop and a petrol store and a first-aid room. These completed, the base will assume proportions worthy of the importance of the station.

MILITARY.

The concentration of the available squadrons of the Royal Flying Corps at Netheravon is now practically complete. No. 2 Squadron from Montrose arrived on May 28th, having lost one officer and one air mechanic in the fatal accident at Northallerton on the way. Three other machines were smashed, and one motor transport vehicle was burnt en route. The accidents to the aeroplanes should be a sufficient answer to those who still hold that the military aeroplanes on active service should invariably fly from point to point so as to reduce the number of transport vehicles on the roads. It should be obvious that the first duty of the R.F.C. is to deliver as many aeroplanes as possible in flying condition at the point from which reconnaissance is to start, and that up to that point the machines should be transported by rail or road, except under unusual circumstances.

Temporary canvas sheds of the expensive but effective type built by the Royal Aircraft Factory, and including various good points observed in the Bessonneau and the Hervieu portable aeroplane tents, have been erected between No. 3 Squadron's permanent sheds and the new R.F.C. quarters nearer Netheravon village. The personnel of the visiting squadrons is to live under canvas.

Altogether some sixty or seventy aeroplanes are concentrated at Netheravon. So far as one can gather no one squadron has its full complement of twelve aeroplanes in service and twelve in reserve, but the five squadrons will average something over the minimum twelve machines per squadron. Lieut.-Col. Sykes commands the whole force, the various squadron commands being as follows: No. 2 Squadron (Montrose), Major Burke; No. 3 Squadron (Netheravon), Major Brooke-Popham; No. 4 Squadron (Netheravon), Major Raleigh; No. 5 Squadron (Farnborough), Major Higgins; No. 6 Squadron (Farnborough), Major Becke. No. 1 Squadron (Farnborough), Major Longcroft, and No. 7 Squadron (Farnborough), Major Salmond, are still in process of formation, so that they will not be present as squadrons, though possibly

individual pilots of these squadrons may take part in the operations.

The machines in use are chiefly B.E.s, leavened with an admixture of Henri and Maurice Farmans, Sopwiths, Blériots, some of the new R.E.s, and perhaps one or two single-seater Avros of an obsolete type.

Much interesting information should result from the combined operations of the five squadrons, and one ventures to wish all of them freedom from accident and pleasant weather for their exercises.

* * *

Lieut. Rodwell returned to Montrose last week to fly B.E. 272 south to the Concentration Camp at Salisbury. The machine was not ready, but he was expected to leave early this week.

* * *

On Thursday last (May 28th), Mr. Winston Churchill was flown from Upavon to pay a visit to the Oxfordshire Yeomanry, in which he holds the rank of major, who are encamped on Salisbury Plain.

* * *

After a long delay the Government has decided to build forty-five cottages at Farnborough in an attempt to relieve the terrible overcrowding in the village resulting from the importation of the hundreds of men in the Royal Aircraft Factory.

FRANCE.

The "Journal Officiel" of May 20th publishes conditions under which military brevets will be issued to officers, sub-officers, and privates in the French army. All candidates, in addition to being proficient in the management of their aircraft (aeroplane, balloon, or airship), must pass a theoretical examination and show a knowledge of internal-combustion engines.

Brevets will only be issued to those who are actually serving or have served their time with the colours. Only certificates of performance will be issued to those who have not qualified in this respect, and they will not be admitted to the examination in theory.

By a Ministerial order of May 23rd the following transfers have been made in the military aviation service:—Capt. Berthon, of the 1st Aviation Group, under the Colonel-Commandant of that group, to be second in command; Capt. Fougereux, formerly of the 1st Aviation Group, to command the Centre of Dijon; Capt. Maurice, from the 2nd Group at Saint Cyr to the 1st Group, and at Dijon; Capt. Farges, from the 2nd Group at Buc to the 1st Group at Lyon; Capt.

Villermoy, from the 1st Group at Lyon to the 2nd Section of the 1st Group at Chalais-Meudon; Lieut. Cottrets, from the 2nd Group at Buc to the 1st Group at Nancy; Lieut. Brault, from the 2nd Group at Buc to the 1st Group at Dijon; Lieut. Sassary from the 2nd Group at Reims to the Centre of Maubeuge; Lieut. Durand de Premorel, from the 2nd Group at Reims to the Centre Casablanca; Lieut. Vitrat, from the 1st Group at Nancy to the 2nd Group at Saint Cyr; Lieut. de la Pomélie, from the 2nd Group at Buc to the Centre at Reims; Lieut. Laurent, from the 2nd Group at Reims to the Centre at Chalons.

On May 22nd Lieut. Campagne, on his R.E.P. monoplane (80-h.p. Gnome), flew from Reims to Castelnaudary. On the following day he continued to la Champagne via Bordeaux and Buc, thus flying 2,000 kms. in two days.

On May 22nd M. Leshermes on his Deperdussin, Lieut. Chubert on a Blériot, Lieuts. Mouchard and Gignoux on a Maurice Farman, and Quartermaster Pelletier d'Oisy on a Henri Farman, flew over Lyon on the occasion of the arrival of the visit of the French President.

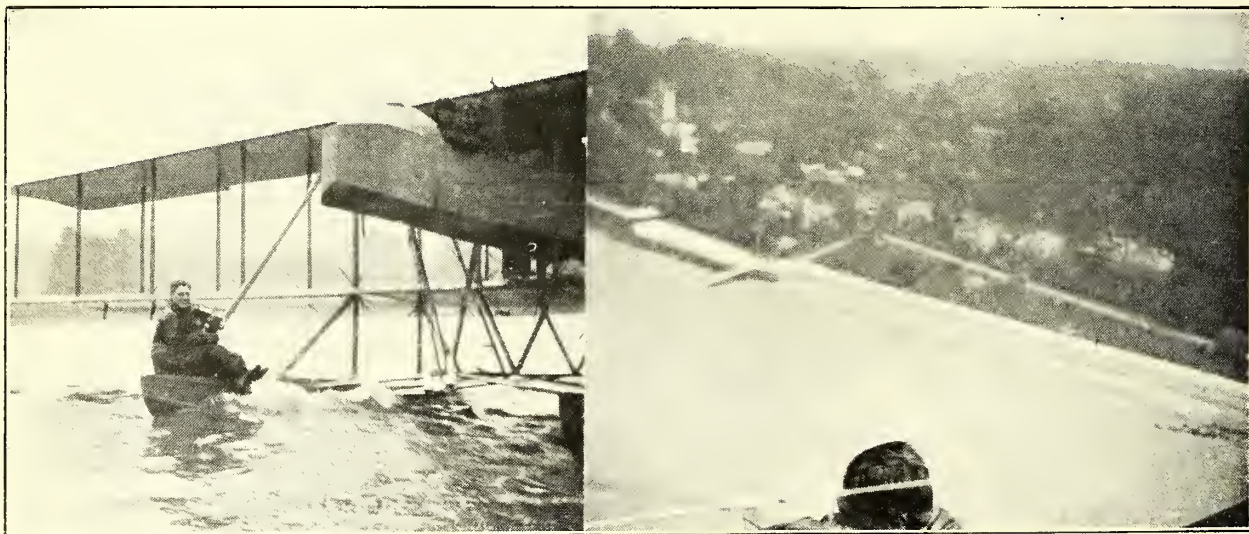
On May 22nd M. Rugère tested eight two-seater Voisin biplanes (80-h.p. Le Rhones) at Mourmelon, in the presence of Capt. Destouches.

Last week the Caudron escadrille, under command of Capt. Péralda, left Douai and passed Evreux, Rouen, Dieppe, Le Crotoy, and Calais, finally returning to Douai, a distance of 800 kms.

On May 25th General Bernard, director of military aeronautics, visited Vichy on behalf of the Minister of War, where Capt. Voisin and Private Desdo are lying seriously injured as the result of the accident which terminated their 7,000-km. "raid." After congratulating the aviators on their magnificent journey, he announced to Capt. Voisin his nomination to the grade of Chevalier of the Legion of Honour, and informed Pte. Desdo of his immediate nomination for the military medal.

M. Pierre Gouguenheim, the famous pilot of Farmans, has been appointed to escadrille H.F. 13 at Chalons, under command of Lieut. Provilliard.

Capt. Couade, of the technical section at Vincennes, has designed a new monoplane for use with artillery. The machine is being tested at Chalons by M. Weymann. The machine is constructed entirely of metal with the exception of the wings. The fuselage behind the pilot consists of a 25 cm. steel tube, and is braced up with cables. The machine, which is fitted with an 80-h.p. Le Rhone, has a chassis of Morane type, and is easily assembled and packed up.



How seaplane passengers are not carried. The above photographs by Mrs. Gordon England show Mr. Ferguson, the cinematograph operator, about to start his trip to photograph the action of the Wight floats. On the right the beach at Cowes is shown, taken over Mr. Ferguson's head from the passenger's seat.

Aerial Derby, 1912**Aerial Derby, 1913**

BOTH WON ON

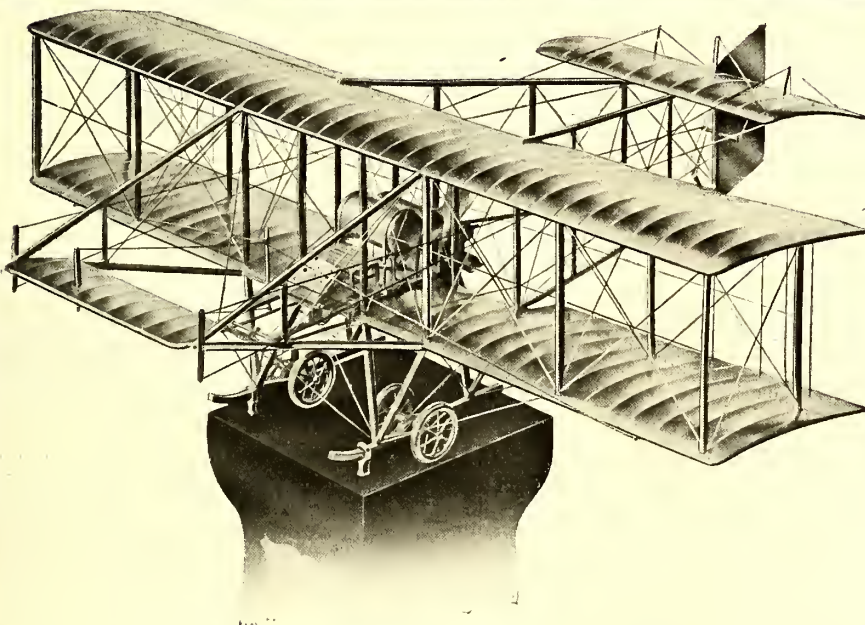
'SHELL'

Aviation has no greater factor in its success than "SHELL"—witness the numerous triumphs, as well as the daring "looping-the-loop" and upside-down flights of many famous aviators on this world-renowned motor spirit.

"SHELL"*Power supreme on land, sea, and in the sky.**By Appointment.*

BRITISH PETROLEUM COMPANY, LTD.,
22, FENCHURCH STREET, LONDON, E.C.

Models



The Company specialise in the production of Silver scale Models of Aeroplanes, correct in detail and of fine workmanship.

Photographs and Estimates submitted free.

Representative sent to any address to take particulars

MAPPIN & WEBB, LTD.

158-162, OXFORD STREET, W. 2, QUEEN VICTORIA STREET, E.C. 220, REGENT STREET, W.

Paris: 1, Rue de la Paix. Lausanne. Rome. Nice. Biarritz. Buenos Aires.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

After having accomplished much successful work in checking artillery-fire at Mailly, the Maurice Farman escadrille No. 8 flew to Nancy, where from May 1st to May 23rd it has been practising controlling siege-gun laying. The pilots of the escadrille are Capt. Fassin, Lieuts. Moris, Vogoyeau, and Sallier, Asst.-Surgeon Perin, Sergt. Homerain, and Quartermaster Poincard. Each of these aviators averaged 20-25 hours' flying, carrying artillery officers and sous-officers as observers. The flying, which was done in every kind of weather, received the special commendation of Col. Bouttieaux.

On May 27th MM. Gilbert and Requet tested three Morane Parasols (80-h.p. Le Rhone) at Villacoublay in the presence of Capt. Destouches. They climbed 1,000 metres in 6 mins. 20 secs. with a useful load of 285 kilos.

On May 27th Sergt. Carnoy passed for his military brevet in bad weather, flying between Villacoublay-Chartres-Orleans and back to Villacoublay. He maintained a mean altitude of 4,500 ft. He got a bad shaking up on landing the machine—a Morane.

On May 27th Lieut. Rémy flew for two hours at Cercottes on a Farman, carrying a machine-gun, which was operated by Sapper Lorgnat.

The Bréguet and Voisin seaplanes, fitted with Salmson engines, continue their success in the naval manœuvres in the Mediterranean. Lieut. Dutertre has been flying at night on a 200-h.p. Bréguet, carrying flares. He is also flying a 130-h.p. Bréguet with a Salmson motor.

M. Moineau is operating a 200-h.p. Bréguet fitted with wireless, which is giving good results. Lieut. Fournier is flying a 130-h.p. Voisin and carrying many marine officers. Lieut. Jauvier is flying a similar machine.

On May 9th M. Moineau was starting for a flight on a naval Bréguet accompanied by a passenger, at Toulon, when the machine caught fire. The passenger dived over the side, but M. Moineau, being farther from the tank, waited in the machine till he was rescued by a boat.

Algeria.

The Bizerte escadrille continues to do good work in connection with the manœuvres. On May 20th all the Nieuport seaplanes were out. In the morning Lieuts. de l'Escaille, Delage, Destrém, and M. Levasseur made long reconnaissances, two of them making two-hour flights. Similar flights were made in the evening with passengers.

On May 30th an escadrille of three biplanes, flown by Lieuts. Battini and Ménard and Quartermaster Benoît, flew from Bon-Denib to Algiers in two hours.

Morocco.

On May 23rd the Morocco escadrille returned from Taza to Fez, after doing much valuable scouting work.

GERMANY.

On May 20th three German officers landed at Namur, in Belgium. They returned to Germany the following day.

Two German officers, Capt. Schmöger and Lieut. Paul, of the flying station at Graudenz, crossed the Russian frontier in a biplane on May 27th, were shot at, and on landing were arrested. The officers were flying from Graudenz to Thorn, and were carried off their line by a severe thunderstorm, and landed more than 10 miles from the frontier. They were released on the following day after explanations.

Of the 25 pilots who started on the Prince Henry Circuit, 13 completed the fourth stage within the time-limit, ending on the evening of May 22nd. Chief honours went to Lieuts. von Thuena (17 hrs. 15 mins.), von Beaulieu (17 hrs. 30 mins.), and von Buttler (17 hrs. 45 mins.).

On May 23rd the strategical manœuvres between Hamburg, Muenster, and Cologne (a distance of 400 kilometres) started, in which a number of officers not entered for the tour took part, 40 men being sent off in a very strong head-wind. Shortly after the start Capt. von Detten came to grief outside Hamburg; both he and his passenger, Lieut. von Falkenhayn, escaped with a severe shaking. Hantelmann, who flew so well in the circuit, smashed up in landing without any injury to himself. Lieut. Krafft, of the Bavarian army, landed near Berka owing to engine trouble, striking a bump in the ground, and suffered a fracture of both arms. Then came a double

fatality near Wellendorf, near Osnabrueck. A terrible storm suddenly swept over Germany, and whilst attempting to land, Lieuts. Boeder and Bernhardt fell from 1,400 metres and were killed on the spot. A number of officers arrived safely at Muenster, where a pause was made owing to the terrific thunderstorm. Near Wanne, Lieut. Koenig's machine was struck by lightning without any evil results, and several others were forced to land in a tiny clearing in the woods. Joly, who was the first to arrive at Cologne, found that his propeller had been whittled away in parts by a fierce hailstorm. Thelen and von Hiddessen followed Joly to Cologne on May 23rd after a tussle with the elements, but the main contingent only put in an appearance on the morning of May 24th, another stormy day. Several withdrawals occurred, whilst other men were still en route and arrived singly at Cologne.

On May 25th 22 officers and three civilians set out on the tactical reconnaissance between Cologne and Bonn-Hangelaar, all flying very low owing to the dense, low clouds, Von Buttar, who was the last to be sent off, was the first home within 50 mins., followed in rapid succession by Lieuts. von Osterroth, von Beaulieu, von Thuena, and Hempel.

On the evening of May 25th the prize distribution took place in Cologne at a banquet at which H.R.H. Prince Henry of Prussia presided. The placings of the 12 men who covered all the four stages of the circuit correctly are: (1) Lieut. von Thuena (L.V.G. biplane), 17 hrs. 16 mins. 9 secs.; (2) Lieut. von Beaulieu (L.V.G. biplane), 17 hrs. 29 mins. 6 secs.; (3) Lieut. von Buttler (L.V.G. biplane), 17 hrs. 29 mins. 3 secs.; (4) Lieut. Bonde (Albatros biplane), 21 hrs. 54 mins. 1 sec.; (5) Lieut. Geyer (Aviatik biplane), 22 hrs. 34 mins. 3 secs.; (6) Krumsiek (Gotha-Hansa Dove), 23 hrs. 14 mins. 4 secs.; (7) Schauenburg (106-h.p. A.E.G. biplane), 26 hrs. 35 mins.; (8) Lieut. Schlemmer (L.V.G. biplane), 26 hrs. 52 mins. 8 secs.; (9) Thelen (75-85-h.p. Albatros biplane), 27 hrs. 34 mins. 5 secs.; (10) Lieut. Joly (Gotha-Dove), 28 hrs. 40 mins. 8 secs.; (11) Lieut. Ladewig (Rumpler monoplane), 29 hrs. 50 mins. 7 secs.; (12) Lieut. Hantelmann (Albatros-Dove), 30 hrs. 15 mins. 3 secs. Lieut. Muehlig-Hofmann, "hors concours," Albatros biplane, completed the distance in 25 hrs. 56 mins. 9 secs. With the exception of those specially mentioned, all the motors were 100-h.p. Mercédès. Lieut. Pfeiffer (Albatros-Dove) also covered the entire course, in 42 hrs. 54 mins., but as he exceeded the time-limit he was not classed. The first and second stages were accomplished by Lieuts. Pretzell and Kastner, Paschen and Schroeder, these two last "hors concours," whilst the first stage was completed by Stoeffler, Schlegel, Stiefvater ("hors concours"), and Lieut. Kolbe. A number of the aviators who did not finish the first stage took part in the purely military flights.

The prizes were distributed by Prince Henry, the Emperor's prize being won by Lieut. von Thuena, the Prince Henry prize by Krumsiek; their observers received the prizes given by the King of Bavaria and the Grand Duke of Baden. The Grand Duke of Oldenburg's prize was awarded to Lieut. von Beaulieu, the trophies given by the Duke and Prince Wedel to Lieut. von Buttler. Krumsiek, Schauenburg, and Thelen, who went through the tactical and strategical flights, each received a sum of 4,500 marks.

L. 3, the new naval airship, completed a 34-hour test trip with the marine commission on board last week, starting from Friedrichshafen at 7.15 a.m. and landing at Friedrichshafen at 5.15 in the afternoon of the following day. Its route was via Basel, Frankfurt, Metz, Bingen, to Bremen, where it crossed to Heligoland, manœuvring there in the early morning hours before wending its way to the German capital.—B.

The Duke and Duchess of Brunswick, the latter the only daughter of the German Emperor, ascended for an hour's tour in the military airship Z6 on its visit to Brunswick. They were both delighted with their experience.

German S.W. Africa.

The aviation section which was sent to South-West Africa some time back is reported to have done great work. Herr Buchler has flown at Swakopmund and at Usakos, and on one occasion he carried a sort of aerial mail between Swakopmund and Karibib, together with a passenger.

THE BRITISH CAUDRON COMPANY, LTD.

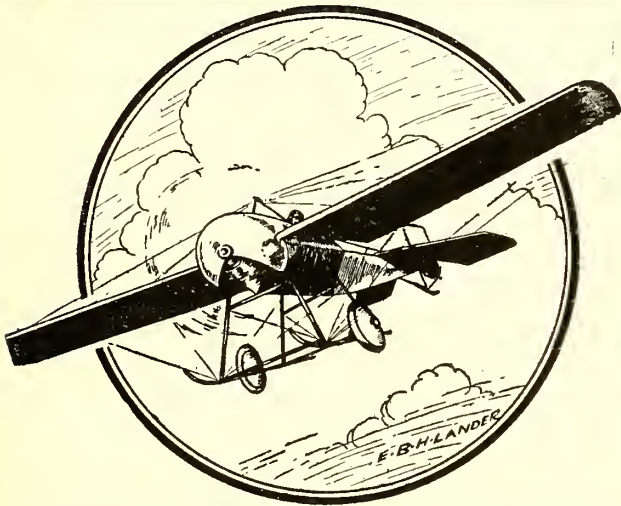
(Late the W. H. EWEN AVIATION Co., Ltd.)

British built **CAUDRON** monoplanes, biplanes, hydro-aeroplanes (combined wheels and floats.)

The Flying School, which is one of the most successful in this or any country, will be carried on as usual at The London Aerodrome, Hendon.

THE WORLD'S DURATION RECORD was raised to 16 hours, 28min., 56 secs. by M. Poulet on a **CAUDRON Biplane** on April 26.

Telephone: 50 Kingsbury.



"BLACKBURN"

Monoplanes, Biplanes, and Hydro-Biplanes,
Propellers and Accessories.

THE BLACKBURN AEROPLANE COMPANY,
BALM ROAD, LEEDS.

Telegrams—"Propellers, Leeds." 'Phone—2822 Central.

London Offices: H. A. TURRILL, 104, High Holborn, London.

Telephone—4950 and 1791 Holborn.

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS

for the building of

HENRY & MAURICE FARMAN

Aeroplanes
AND
Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices :
47, VICTORIA STREET, S.W.

"PERRY-BEADLE"

BRITISH BUILT
FLYING BOATS
AND
AEROPLANES.

Watch our 45 h.p. Tractor
Biplane now at Brooklands; the
ideal machine for the private
owner. Speed, 65 miles per
:: :: hour. Price, £450. :: ::

Every class of Aeronautical
constructional work carried out.
Send us your enquiries for work
to be executed to your own ideas.

Offices and Works:

GOULD ROAD, TWICKENHAM.
ENGLAND.

Telephone—RICHMOND 1109.

AUSTRIA.

On May 21st M. Bill tested and delivered a Henri Farman biplane (80-h.p. Clérget-Blin motor) before a military commission at Marckt-Fischamend, near Vienna. On the strength of the fine performance the machine put up, it is said that the Austrian Government has ordered six more machines of identical type.

RUSSIA.

Sous-officer Semichkourof, instructor at the Sebastopol military school, who sustained a fall, has died after three days of terrible suffering.

It is reported that on May 24th Army-aviator Nesterof flew on a Nieuport from Kief to Gatehina, near St. Petersburg, a distance of 1,000 kms. He made two stops on the way.

ITALY.

On 15th inst., at Venice, Capt. Guidoni, who was flying a Farman waterplane with Naval Lieut. Miraglia as passenger, noticed that the aeroplane was on fire. The good luck that always smiles upon the esadrille of S. Mark got them down onto the water and out of the machine in time, neither of them being much the worse, though the Farman, left to itself, was badly burnt.

A lull seems to be the only striking event—or absence of events—in the military flying centres. No doubt the overhauling of the monoplanes and the preparations for the aerial locomotion show at Turin are responsible.

P. 3 at Turin, however, made a useful round trip to Asti and back one day last week.

The aviators' capital, as Turin has certainly become, can show quite a nice variety of aerial vehicles just now, as well as several freak-planes. Maggiora flew the 50-h.p. Parasol Nieuport over there from Busto recently to exhibit it to the powers that rule, and now De Dominicis is back from France with a looping Caudron whose virtues he will endeavour to impress upon them.—T. S. H.

TURKEY.

Now that the Ottoman mission has returned to Constantinople, considerable developments are to be expected in Turkish aviation shortly. Capt. Goys has gone to San-Stefano to superintend a new installation there. A project is on foot to reorganise the whole Turkish air service.

On May 18th Commandant Fazil made many interesting flights, and carried out bomb-launching experiments with considerable success.

Salim Bey and Kemel Bey have now terminated their Constantinople Cairo "raid." The Turkish authorities look upon the flight with considerable satisfaction.

SWITZERLAND.

The tests to be passed by candidates for the Swiss flying corps are sufficiently severe. After preliminary training, they will have to pass an examination as follows:—Theory: Knowledge of meteorology, map-reading, knowledge of the aeroplane and internal-combustion engine. Practice: Two cross-country flights of 150 kms. without landing, and a circular flight of 300 kms. in two days. In the course of these flights the pilot must attain an altitude of at least 2,500 metres, must cross a mountain chain 2,000 metres high, must remain at an altitude of at least 1,000 metres for 45 mins. He must climb to 500 metres and descend with engine stopped. All these flights must be made on a Swiss military machine, starting each time with four hours' fuel and carrying a dead weight to represent an observer.

BULGARIA.

Capt. Saketarooff, of the Bulgarian army, is visiting Paris, where he will superintend the testing of several monoplanes ordered by his Government.

U.S.A.

It is stated that 30 Burgess waterplanes have been ordered by the U.S.A. navy.

Foreign Notes.**France.**

On Sunday week the Association Amicale des Aviators held their first aerial picnic at Chartres. Twelve machines turned up altogether, piloted by MM. Leblanc, Giraud, Reymond, Honoré de Lareinty-Tholozan, Maurice Farman, Jules de

Lareinty-Tholozan, Auger, Bill, Molla (all from Buc), M. Bonnier (from Villacoublay), and M. Mahieu (from Chateaufort), who carried two passengers. Various other pilots travelled to Chartres by road, and the whole party sat down to a spread which had been carried in the different machines.

M. Jules Védrières has joined the ranks of the loopers, having made an "impeccable boucle" on a Blériot at Buc.

On Sunday last week, M. Garaix, flying the Paul Schmitt biplane, started from Chartres carrying three passengers, and flew to Juvisy in 42 minutes, beating the cross-country flight for three passengers.

On May 18th, M. Seoffier, accompanied by a lady passenger, flew from Nîmes to Genoa and back to Savona. The outward journey took 1 hr. 25 mins.

Sign-numbers have now been painted on 54 local gasometers for the benefit of aviators, and very shortly 200 more will be established. For instance, the sign at Dieppe is "991-109."

M. Comte, testing a Morane at Villacoublay, fitted with an 80-h.p. monosoupape Gnome, climbed to 2,500 metres (7,700 ft.) in 14 mins.

On May 17th Madame Cayat, the wife of a parachute inventor, jumped from M. Pelletier's biplane at Nevers from a height of 800 metres and alighted safely.

Mr. Coffin is busy testing an E.J.C. engine on a Vendôme monoplane at Chateaufort. He has already made a flight of two hours' duration.

Mr. Oswald Watt, recently flying in Egypt, has been busy with his 60-h.p. Blériot at Buc during the past month.

M. Girod, deputy for Doubs, piloted by M. Molla on an 80-h.p. Deperdussin, flew from Vincennes and landed at Soissons. The journey of 120 kms. took 1 hr. 5 mins.

A French contemporary states that to date the Channel has been crossed 99 times by aeroplane.

The first tests in connection with the "Concours de la Sécurité en Aéroplane" were held on Tuesday, May 26th, at Chartres and at Chalons. Of the large number of competitors who have entered for the prize offered for the machine showing the greatest advance in the direction of increased safety, only



The Interior of a Bristol Military Travelling Aeroplane Workshop.

four responded to the Committee's invitation to demonstrate on this occasion. The day was ideal for the purpose, cold and dismal with a gusty wind varying from 12 to 16 metres per second (26 to 35 m.p.h.). M. Gaston Caudron on a Caudron biplane and M. le Bourhis on a Blériot started demonstrations at Chalons, M. Caudron making flights of marked steadiness and perfect landings, and afterwards leaving for Chartres (250 kms.—155 miles), where he arrived safely, after a long tussle with a head wind.

M. le Bourhis then demonstrated on the Blériot, looping, tail sliding, and zig-zagging sideways, showing that his machine was under perfect control and that he could recover from any position, and also left for Chartres, which he failed to reach, landing at Buc.

At Chartres, Lieut. Gouin, on a machine of the Blériot "total visibility" type with wings of his own design, the novelty apparently consisting of considerably "washed-out" wing tips, and fitted with a split rudder air-brake, and M. Garaix on the Schmitt variable incidence biplane, both gave demonstrations of their ability to fly comfortably in high winds, the Schmitt biplane demonstrating its controllability at its minimum speed of 55 kms. per hour (34 m.p.h. about) in the very bad wind then blowing, even when loaded with pilot, three passengers and 200 litres (44 gallons) of petrol, and 70 kilogrammes (154 lbs.) of oil, making a total weight of 1,700 kgs. (3,740 lbs.).

Both these pilots, after the demonstration flights, flew to Chalons, with the wind, Lieut. Gouin covering the 250 kms. in 2 hrs. 10 mins.

It is noteworthy that no machines of startlingly new design made an appearance on this occasion, the Caudron and the Blériot at Chalons having been apparently standard machines. The Schmitt machine—if the reports of her "maniabilité parfaite" can be accepted as accurate—made an excellent show and justifies the variable angle of incidence which is her special feature. Lieut. Gouin's machine may be expected to be quite good and the use of the split rudder air-brake is of considerable interest.

M. Drziwiecki's tandem monoplane, designed to give a large measure of inherent stability—is complete at Chartres, but is not yet tuned up.

On May 25th, Mr. Crawshaw made short flights at Buc, accompanied by Miss Trehawke-Davies.

On May 27th, M. F. Durafour, who has bought M. Vidart's Deperdussin, flew from Geneva to Lyon.

M. Verrier's flight from Buc to Gentin in connection with the Pommery Cup Competition has been calculated by the military geographical service to represent 818 kms.

On Monday of last week, M. Moreau flew from Melun to Chartres to exhibit his automatically stable monoplane to the jury of the "Safety Aeroplane Competition." M. Moreau went for a flight in a very bad wind, but after 30 minutes in the air he was compelled to come down from "seasickness" caused by the terrific rocking of the machine. This monoplane is now fitted with an So-h.p. monosoupape Gnome.

Germany.

The first German aerial post was flown in May 11th between Dresden and Liepzig, Herren Meyer and Roempler (well known at Brooklands) carrying 15,000 letters and postcards on D.F.W. biplanes. The return journey was made in the evening.

The Society of Aeronauts of Berlin has strictly forbidden its members to fly over Russian territory on any pretence.

An official brochure states that the number of days on which flying took place at Johannisthal during 1911, 1912 and 1913, were respectively 289, 317, and 336. The total duration of flights during these period were 821, 1,966, and 4,096 hours, which represent 7,489, 17,651 and 36,817 flights the last number representing about 110 flights per day. Apparently there was one fatal smash in 1913 for every 3,000 flights, an average which represents rather a high death-rate.

Arrangements have been made by the German authorities for permits to be given to competent French civilian aviators who desire to fly over German prohibited areas. Applications must be made to the German Consul.

The motor-boat and waterplane meeting on Lake Constance

opened under unfavourable conditions, as in the cruising handicap a boat sank and the pilot was drowned. Only one waterplane event was flown during the first afternoon owing to a tempestuous rainstorm. The honours of the event, a speed trial, went to Hirth (100-h.p. Albatros biplane) in 28 mins. Tuckenbrock (135-h.p. Friedrichshafen biplane) was second, and Schirrmeister, on a machine of similar make, third. Later Ernst Stoeffler ascended to beat Hirth's time, and he covered the set distance in 25 mins. 33 secs. on his Aviatik biplane. Although the rain still came down in torrents, Stoeffler's success stirred up the rest of the competitors, and all the machines came out again, Hirth chopping 28 secs. off his previous time and Tuckenbrock also slightly improved his afternoon's performance.

Thirty-three entries, including Schueller, Linnekogel, Friedrich Stiploschek, Krieger, Freindt, Langer, Hanuschke, Koenig, Reiterer, Kuehne, Krumsiek, Boutard, Ballod, and Stiefvater, were received for the "three-cornered flight" from Johannisthal to Leipzig and Dresden, which is now in full swing, and finishes on June 5th in the Saxon capital.—B.

The German Aero Club granted during 1913, 293 pilots' certificates; 113 certificates were taken on biplanes and 180 on monoplanes.

The ages of the pilots make an interesting study. There were: 9 of 18 years; 21, 19; 28, 20; 21, 21; 20, 22; 23, 23; 31, 24; 31, 25; 15, 26; 20, 27; 16, 28; 12, 29; 10, 30; 8, 31; 6, 32; 4, 33; 5, 34; 5, 35; 4, 36; 1, 37; 1, 38; 1, 41; 1, 43. Of these only 82 were military brevets, but it must be noted that for obvious reasons many officers never take the ordinary certificate.

Twenty-two of these certificates were taken on Bristol monoplanes and biplanes; 142 certificates were taken at Johannisthal during the year.

On Saturday week M. Chevillard made a bad landing near Dusseldorf and dislocated his shoulder. His passenger is suffering from a "strong cerebral commotion."

Russia.

On Sunday, May 17th, M. Poirée, flying a Farman-Le Rhone, gave an exhibition of flying at St. Petersburg. On the same day, the Russian pilot, Yankovsky, looped on Sikorsky No. XII three times (we presume this is not the Ilia Mourametz!). M. Pégoud has also been operating at St. Petersburg.

Italy.

During last week Maggiora put the Parasol Nieuport through various trials, including cross-country work, ending up by flying her over from Busto to Mirafiori, where he exhibited her to representatives of the aviation battalion. Not being a mere racing machine, she seems to be quite fast and altogether to respond to her designer's expectations.

Landini finished up the Elba commemorations by a rather severe smash and a very nearly fatal ducking. His land mono got in a gust, took the water very heavily, and kept him under for just about the limit, only his cork jacket saving him.

On May 24th Celestino Uselli's new dirigible (Uselli III), of 13,000 c.m., and 50 yards long, which is fitted with a 100 S.P.A., when undertaking her trial trip, left the hangar at Villa Pizzone, near Milan, and very shortly got into the tail of the cyclonic disturbance which raged over N. Italy at that period. The crew of three decided to land, and accomplished this manœuvre safely in a field, and when no abatement of the wind seemed likely, and time was wearing on, they proceeded to detach the nacelle, hoping to tow the envelope still inflated to the shed. In spite, however, of assistance from troops, before the release valve could be operated, the gasbag broke away and navigated for three hours on its own, being found quite close and scarcely damaged the same night.

Curiously enough, I had to recount a similar tale about Uselli II on almost the same date last year.

The Aviation Section in the Turin show of last week was seemingly intended rather to keep alive public interest than to afford experts food for thought. To which intent lectures, music, and experiments were provided. Model dirigibles controlled by Hertzian waves, souvenirs and tango teas will, it is hoped help to make it a financial success.

The firms supplying the Governments showed of their latest. They were the Savoia, the Sit, and the Macchi concerns, and among them, though not yet of them, was the Gabardini Co. The aviation battalion showed us how an escadrille transports its suite and baggage, much as last year.

Among the motors, an Italian 2-cycle rotary, called the Po, attracted one's notice, and a deep-thinking friend of mine writes glowingly of the Neri propeller for waterplanes, which I mentioned quite lately in connection with Cevasco's flight to Rome. Inevitably of small diameter on principle, i.e., the blades curve back towards the boss—this latest model is of wood with a metal skin.

Though the art of presenting things in an attractive way would appear to have been mastered and show finish was excellent, the sad lack of distinctive Italian features must have struck the foreign visitor. Things have become standardised and stereotyped.

The proportion of waterplanes to ordinary 'busses showed, it is true, a healthy increase over that of last year's show, but the employment of metal in building does not seem to be making way here. Only Gabardini makes much use of it.

Having seen mention of Capt. Fabbri, I think it advisable to point out that care should be taken not to confuse him with Major Dal Fabbro, also a very prominent personality, but on the dirigible side.

Signor Oneto, writing from Pisa, informs me that he has acquired from the brothers de Antoni their business, their aerodrome, and the patents covering the de-Antoni monoplane, and intends to go ahead in that district. It is pleasant to learn that the two brothers have been appointed technical directors of the new undertaking.

A "Round Italy" competition, date unfixed, has been decided upon by the I.AëC.

If reports can be trusted, Caviggia has got a dark horse at Orta quite worth following. The 'bus is described as a small metal waterplane of Italian design and build, on which he recently flew from Lake Orta to Lake Maggiore over a mountain range 5,000 ft. high. The machine got somewhat damaged afterwards when giving a passenger new thrills.

Delagrangé's primitive box-kite is to be consigned to the Italian Aero League for permanent and safer custody than Cameri can give it.—T. S. HARVEY.

Sig. Bossi is now engaged on the construction of a large flying-boat of 75-ft. span, which is to be entered for the trans-Atlantic flight. It will be fitted with a 300-h.p. Salmson motor, which is to be placed inside the boat.

Belgium.

It is said that M. van den Born, the famous pioneer pilot, intends to make an attempt on the trans-Atlantic flight, and that a seaplane is being built for him at Nice.

On June 7th, M. Jean Olieslagers is to fly against M. Garros at Brussels.

Switzerland.

On May 23rd M. Burri, flying the F.B.A. boat (100-h.p. monosoupape Gnome) on which he took second place in the Schneider Cup race, carried a passenger over the Seine at Bezons to a height of 2,100 ft. in 24 mins.

Norway.

Chanteloup, on his Caudron (60-h.p. Le Rhone motor), has been engaged to give demonstrations of "looping the loop" in a great many Norwegian cities.—H1.

On May 22nd M. P. Chanteloup evolved before the King and Queen of Norway at Trondhjem.

Sweden.

Dr. Thulin flew over from Landskrona to Malmö on Friday, when the Baltic Exhibition was opened by the Swedish Crown Prince. Afterwards he flew with some photographs to Stockholm to enable a newspaper there to use them in the next day's number, what would be impossible otherwise. Dr. Thulin covered the distance Malmö-Stockholm (270 miles) in a non-stop flight of 4 hrs. 17 mins.—H1.

Denmark.

From Mr. Erik Hildesheim, of Copenhagen, comes a post-card bearing the words, "With the first Danish Aero Post

from Copenhagen to Roskilde with Ussing on Henri Farman. I send you my best greetings." The card bears the special post-mark, "Besorget Med Danmarks 1ste Flypost, 12 Maj, 1914."

The Danish Morane-Saulnier pilot Seth-Jensen, who last year made a non-stop flight of 960 kms. straight above Germany on a Clément-Bayard monoplane (60-h.p. Clerget motor) only one month after getting his brevet, is now training for the Pommery prize to come, and the other day, as the first Dane to do so, did some looping the loops.—H1.

Australia.

On May 13th M. Guillaux is stated to have reached an altitude of 2,133 metres (6,580 ft.) at Sydney while carrying a passenger on a Farman seaplane. This is alleged to be a world's record.

On May 22nd Mr. Baily descended hurriedly from a height of 3,000 ft. on his home-made biplane, which was smashed, but the pilot escaped with superficial bruises.

U. S. A.

On May 3rd Mr. H. P. Harries was killed while making an exhibition flight at Akron, O. The machine, which was a Curtiss, fell to pieces in the air as the result of the pilot flattening out too sharply after a steep dive.

On May 8th Mr. Percival Van Ness was killed at Utica, N.Y., while testing a new machine.

First trials were made on May 11th at the Hempstead Plains Aviation Field with the wire-launching and landing device of James T. Amiss, of Baton Rouge, La. Mr. John Guy Gilpatrick, on a Sloane monoplane, equipped with rollers, alighted successfully on the wire pathway, but the machine not being equipped with brakes, which are part of the design, rolled off the end, sustaining slight damage.

The device is designed to facilitate the alighting and starting of aeroplanes from battleships, or on bad or restricted grounds. The apparatus consists of a landing platform made of a network of wires ten inches apart stretched between two rows of posts 200 feet apart. For naval work the wires are stretched along one side of a battleship or above the forward deck, while for military work they can be quickly erected at almost any point, particularly in the mountains and over grounds where good landing places cannot be found. Any aeroplanes or hydro-aeroplane can be adapted to land on these wires by a simple attachment of rollers underneath the chassis and the fitting of a special arrangement of hooks which catch on the wires when the machine alights and prevent it from bouncing or tipping over. When it is desired to start the aeroplane, these hooks are turned so that they disengage from the wires, and the aeroplane runs along on its rollers just as it would on wheels.

The Langley monoplane, which was wrecked on each of its two original attempts at launching somewhere about 1908, has, in accordance with the intentions already reported in these columns, been fitted with a modern power plant by Mr. Curtiss and made a successful flight at Hammondsport on May 28th. This constitutes a striking vindication of the late Professor Langley's pioneer work, but comes, as usual in such cases, too late, Langley having died twelve months after the last effort to launch the machine, his death being in some measure accelerated by disheartenment consequent on the refusal of those who could have financed his experiments to take his work seriously.

Japan.

Baron Shigeno, ex-professor of the Japanese military aviation school, who invented a biplane at Issy-les-Moulineaux two years ago, has returned to France to study the progress of aviation in that country.

Mr. Hamel's Photograph.

Many admirers of Mr. Hamel will doubtless wish to obtain copies of his photograph as a memento. Mr. Birkett, who took the photograph which formed the frontispiece of *THE AEROPLANE* some weeks ago, can supply copies of this, Mr. Hamel's favourite photograph of himself, at prices which will be found in the advertisement columns at the end of this paper.

FIRST and FOREMOST!

THE FIRST AERIAL (1912) DERBY

won by

T. O. M. SOPWITH

using an

INTEGRAL PROPELLER

THE SECOND AERIAL (1913) DERBY

won by

GUSTAV HAMEL

using an

INTEGRAL PROPELLERSole Agents for the FABBRI PHOTOGRAPHIC APPARATUS and
COURSIN'S Sighting Apparatus for Bomb Dropping.

Prices and particulars from

THE INTEGRAL PROPELLER CO., LTD.,1b, ELTHORNE ROAD, UPPER HOLLOWAY, N.
Telephone: Hornsey 2345. Telegrams: "Avirop (U'pholl), London."

THE

Monk Engineering Co.,
LTD.

High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES?

CONTRACTORS TO THE
ADMIRALTY & WAR OFFICE.**Dudbridge Iron Works L^{td}.**

STROUD, GLOS,

Makers and Sole Concessionaires for the
British Empire for the**Salmson**
AERO - ENGINES.Sizes from 80 B.H.P. to 300 B.H.P.
IN SINGLE UNITS.London Office: 87 Victoria St.,
London, S.W.

Telephone—7026 Vict. Telegraph—Aeroflight, Vic. London.

WHY TAKE NEEDLESS RISKS?

EXTRACT FROM REPORT OF THE ROYAL AERO CLUB.

MAY 12, 1914.

Recommendation.—In view of the numerous instances which have come before the Committee in which the use of a safety belt might conceivably have either prevented the accident or mitigated the results, the Committee strongly recommends that all aircraft be fitted for and with some form of quick-release safety belt in order that the pilot may avail himself of this safeguard should he wish to do so. In making this recommendation the Committee is fully alive to the objections that have been raised to the use of the safety belt.

THE 'AVRO'
SAFETY BELT

is built on the most scientific lines by practical men who know the requirements of aviation, and each belt is thoroughly tested.

IT IS THE STRONGEST.

IT HAS THE QUICKEST RELEASE.

42/-.

:: Only one quality—the best. ::

STOP TAKING RISKS TO-DAY.

Write for belt, enclosing cash as above to—

A. V. ROE & CO., LTD.,
CLIFTON STREET, MILES PLATTING, MANCHESTER.Telegrams:
"Triplane, Manchester."Telephone:
337 Failssworth.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Gustav Hamel: An Appreciation.

At this date, nearly a fortnight after his disappearance, it appears evident that we must give up hope of seeing Gustav Hamel again. In the old days, before the advent of wireless or the prevalence of steam, a man might be picked up in the Channel and be unheard of for a year or so, but such could hardly be the case in our time, especially if the person picked up should be one for whom it was evidently worth while to divert the course of the ship to a neighbouring port.

It is a peculiar fact that only a few days before his disappearance, Mr. Hamel, in discussing the Atlantic flight with some friends at Brooklands, said that if the worst happened, if the machine came down in mid-Atlantic and was not picked up, he would prefer such an end to being killed in an aerodrome or exhibition flight, with all the fuss and sensation among the crowd. He did not fear death, but he hated the idea of the grisly details with which the Press loves to decorate any account of an accident in public. Somewhere at the back of his mind I think he had some idea of the dignity of dying in the solitude of the sea as opposed to being killed in the act of amusing a mob of sightseers, and he was right. That he should have gone out in what was to him the trivial feat of crossing the Channel is the irony of fate, but it came somewhere near being such an end as he desired.

No finer epitaph could be written on Gustav Hamel than that contained in the communication issued by the Admiralty in announcing the abandonment of the search for him. "He was without question the foremost exponent in these islands of an art whose military consequence is continually increasing. His qualities of daring, skill, resource, and modesty merited the respect of those who pursue the profession of arms."

It is perhaps not generally known that Mr. Hamel some time ago applied for appointment to the Reserve of the Naval Air Service, and was accepted, though not definitely appointed, so that he was to some degree concerned with the Navy. I gather that he was shortly to take part in some important experimental work for the Service.

As a flier he was recognised as being unsurpassed by anyone in the world. The qualities indicated in the Admiralty document show how true an estimate had been formed of him by those in high places. His daring was shown long ago, when he flew his 50 h.p. Blériot in winds which no one else would face, and later when he looped the loop on a Morane which was practically of the standard type when all other loopers were using specially built machines. His skill has been demonstrated times without number before literally millions of the inhabitants of this country. His resource has extricated him from a variety of tight corners in which a less clever flier would have met with disaster.

The one thing lacking in his outfit as a pilot was forethought. He never seemed, despite all his experience, to foresee what must happen under certain circumstances. Hence his narrow escape with Miss Davies at Hendon, when they nearly fell into Colindale Avenue, also his smash at Bangor, and his collision with telegraph wires at Blackburn, all narrow escapes from accidents in which he might easily have been killed, and all accidents which need never have happened if he had thought ahead a little. Gustav Hamel was very young, so perhaps it was expecting rather much of him to ask that he should look ahead to such an extent, but for general purposes a pilot who foresees where tight corners exist, and avoids

them, gives one more confidence than does he of surprising resource who manages to escape by sheer skill.

Strangely enough, for one who did so much flying, Mr. Hamel knew very little about aeroplanes or engines in general, and was not even particularly well acquainted with those he happened to be using. He could tell whether a machine flew properly when once he was in it, but if it had faults he could never diagnose the causes of those faults, or suggest remedies for them. One often finds the same thing in crack drivers of racing-cars who can drive perfectly, but can hardly change a sparking plug for themselves. Nevertheless, his flying has done great service to British aviation, for his comparative immunity from accident and the brilliance and certainty with which he carried through every manœuvre he attempted gave people confidence in aeroplanes in general, as they ascribed to the machines much of the credit which was really due to the pilot.

Perhaps the most striking thing about Gustav Hamel was his modesty. Considering his immense popularity, not only with the ordinary paying public which witnessed his performances, but with people of the best class who took a personal interest in him, one would have expected him to be unbearably conceited, but, as a matter of fact, he was quite otherwise. He knew he flew well, and it was his ambition to be best flier in the world. When he was adjudged to be the equal of Roland Garros in their famous match last February he was frankly and openly pleased about it, but he did not put on any side over it. When we have talked over this match, and others of his performances, he has always given me the impression that he was wondering whether all the time there was not someone else ready to do still better. His attitude was never that of the man who considered himself unbeatable, but merely the entirely praiseworthy one of the man who is ready to take on in fair competition anyone who may be better than himself. He hated being beaten, which was natural, and he kept on thinking about it till he was ready to go in and win, and so get his own back—as, for example, when Mr. Sopwith beat him in the 1912 Aerial Derby, and when Mr. Huek's looped the loop before he did. It was this determination not to be beaten which largely accounts for his disappearance, for otherwise he need not have gone to France to fetch the very latest Morane racer, nor need he have tried to fly a new and comparatively untried machine and engine across the Channel in a fog. It was an unwise thing to do, but it showed his determination, though the occasion was not worth while.

Personally Gustav Hamel was reserved and inclined to be shy. He disliked public functions, and loathed making speeches, as he was forced to do on occasion. His shyness accounted more than anything else for a feeling among some of those connected with aviation that he was conceited. His was not the "hail-fellow-well-met" manner used by many—and some of them very conceited men—to earn popularity among his fellows, but when one came to know him well, as some of us did, one found that he possessed many endearing qualities. Briefly, he was just a boy who was honestly pleased with himself because he found that he excelled at the game he loved best, and whose general outlook was that of mild surprise that people should make such a fuss about him. Like all boys worth their salt, he took himself and his game very seriously, and one only wishes our public schools would turn out a few thousands more as good.—C. G. G.

The Flying Accident Fund.

The following letter has been received:—

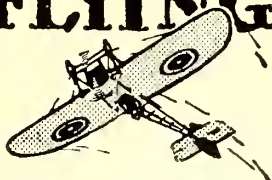
"Having accepted the Honorary Treasurership of the Flying Accident Fund, inaugurated by the Women's Patriotic Aerial League for the assistance of the widows or dependents of pilots killed or permanently disabled, of which Field-Marshal Lord Roberts and the Marquess of Tullibardine, Chairman of the Royal Aero Club, are patrons, I venture to make an appeal on behalf of an undertaking the necessity for which has been so painfully brought home to us during the past few weeks.

"I have already had to thank you, Sir, and your readers for assisting me in the collection of £330 for the widow and orphans of Lindsay Campbell, the Australian aviator, and £1,420 for the family of the late Colonel S. F. Cody, to which Her Majesty Queen Alexandra was graciously pleased to contribute £59.

"All contributions received by me at 25 Denison House, Victoria, S.W., will be thankfully acknowledged in the press.

(Signed) "H. S. MASSY (Colonel), Hon. Treasurer."

EXHIBITION TO PROMOTERS OF FETES, GALAS, ETC.



The inclusion of a demonstration of Flying—especially of Looping the Loop—by B. C. Hucks Airmen as chief attraction will ensure for any open-air event not only a record attendance, but a record profit.

This is a truth we can prove. During the 1913 Season the following results, selected at random, were achieved by Demonstrations of Flying organised after The B. C. Hucks System, and given by B. C. Hucks Airmen.

A London Charitable Institution made a profit of £169 in one day.

A North of England Agricultural Society made an extra profit of £300 in one day, and

A Sporting Club in the Midlands made an extra revenue of £350 during the Season.

It has taken three years for The B. C. Hucks Company to collect the data and experience necessary for the attainment of such results.

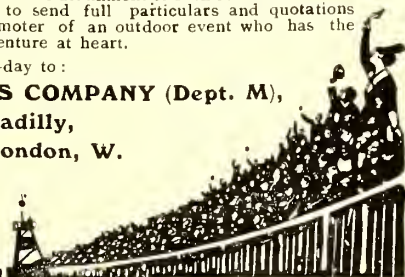
We shall be pleased to send full particulars and quotations on hearing from any Promoter of an outdoor event who has the financial success of his venture at heart.

Why not drop a line to-day to:

THE B. C. HUCKS COMPANY (Dept. M),
166, Piccadilly,
London, W.

General Manager:

J. C. SAVAGE.



SUPREME!

"For the Highway
and the Skyway"

WAKEFIELD 'CASTROL' REGD. MOTOR OIL

THE OIL THAT circulates
everywhere.

THE OIL THAT is con-
sistently reliable.

THE OIL THAT the winners
of the

AERIAL DERBY IN 1912 IN 1913

used for the lubrication of their
engines.

C. C. WAKEFIELD & Co.
WAKEFIELD HOUSE,
CHEAPSIDE, LONDON, E.C.
C.D.C.

Fit Palmer Cord Tyres

You then have tyres that grip and never slip, that give buoyancy and added speed, lessen driving strains, absorb road shocks, reduce petrol consumption, and keep you free from annoying tyre troubles on the road.

*Whatever your mileage or tonnage,
you can always depend on—*

PALMER

(FOR INFLATORS OF THE THREE KID TREAD)

CORD TYRE

THE PALMER TYRE, LIMITED,
119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

Phones: 1214 Gerard (Four lines). 'Grams: "Tyre" cord. Westcent. London.

PARIS: 152, Avenue de Malakoff.—AMSTERDAM: Stadhouders-
skade 91.—GLASGOW: 6, Royal Exchange Sq.—BIRMINGHAM:
Belmont Row.—COVENTRY: St. Mary's Street.—NOTTING-
HAM: Greyfriar Gate.—LEEDS: 54, New Briggate.—
MANCHESTER: 263, Deansgate.

IMPORTANT TO AVIATORS.



EAGLE INSURANCE COMPANY,

ESTABLISHED 1807.

79, Pall Mall, London, S.W.

The directors are now prepared
to quote terms for Life
Insurance including

RISK OF DEATH FROM AVIATION.

For full particulars apply—

F. BERTRAM GALER, B.A., F.I.A.

Manager and Actuary.

The Aerial Derby.

The postponed Aerial Derby will take place on Saturday next, and several new entries have been received.

At the time for the closing of entries those actually in hand were as follows:—

No.	Pilot.	Machine	Type	Engine	Nationality
1	Philip Bjorkland	Blériot	...	M... 50 Gnome	Swedish
2	W. Birchenough	M. Farman	...	B... 70 Renault	British
3	R. H. Carr	Grahame-White	...	B... 50 Gnome	British
4	M. Zubiaga	Caudron	...	B... 45 Anzani	Spanish
5	L. Noel	H. Farman	...	B... 80 le Rhone	French
6	P. Verrier	H. Farman	...	B... 80 Gnome	French
7	J. Blatherwick	Martinsyde	...	B... 60 Antoinette	British
8	L. Strange	Blériot	...	M... 80 Gnome	British
9	J. Alcock	M. Farman	...	B... 100 Sunbeam	British
10	Rowland Ding	Handley Page	...	B... 100 Anzani	British
11	F. Goodden	Morane	...	M... 80 Gnome	British
12	W. L. Brock	Morane	...	M... 80 Gnome	American
13	?	Morane	...	M... 80 Gnome	—
14	Lord Carbery	Morane	...	M... 80 le Rhone	British
15	H. Blackburn	Avro	...	B... 80 Gnome	British
16	R. H. Barnwell	Vickers	...	B... 100 Gnome	British
17	V. Waterfall	Martinsyde	...	M... 120 Austro-Daimler	British
18	?	Sopwith	...	B... 80 Gnome	—
19	S. V. Sippe	Bristol	...	B... 80 Clerget	British
20	F. P. Raynham	Avro	...	B... 80 Gnome	British
21	H. Pixton	Sopwith	...	B... 100 Gnome	British

Froude Water Brakes for Petrol Engines.

Engine-testing appliances being distinctly to the fore at the present time, the excellently got up catalogue just published by Heenan and Froude, Ltd., of Worcester, dealing with "Froude" water brakes for petrol engines, arrives appropriately. Those of our readers who are interested in the subject, particularly those who have attempted brake tests of high speed motors by means of ordinary Prony brakes, will do well to apply for a copy.

In response to the demand for suitable brakes for testing petrol motors, Messrs. Heenan and Froude have designed a type of dynamometer specially suitable for this class of work, known as the Sluice Gear Brake, which is made in seven standard sizes suitable for testing motors from the smallest of motor-cycle engines up to those developing 600-h.p. at 1,000 r.p.m. In addition to the sluice gear brake, a "running-in" type of brake is supplied, which is intended for preliminary runs before actual tests. The catalogue contains a full description of these brakes, dimensions, and capacities of the various sizes, and a number of illustrations of the brakes in use.

The excellent functioning of the firm's dynamometers in the tests now in progress at Farnborough is sufficient testimony to their reliability.

The Handling of Petrol.

From time to time one notices the careless way in which cans of motor spirit are handled by aviators and motorists, particularly as to the practice of using the bottom of one can to remove the faucet from another. Such an operation is disastrous to the can, and where there is damage there must perforce be expense, which must be borne by someone. The British Petroleum Co. have called our attention to this inexcusable misuse, and employers of mechanics will do themselves a service by forbidding the use of a can as a lever.

Business and Pleasure.

Anyone who appreciates a hearty laugh and who would like to acquire a stock of quaint phrases, should write to the Palmer Tyre Co. for an advertisement pamphlet they have recently issued, entitled "A Tour on Tyres with a Tyro." It is written by Mr. Ashley Sterne, whose genuinely funny articles have long been one of the features of "London Opinion," and it is illustrated with distinctly clever marginal drawings by some artist unnamed, of obvious ability. The advertisements therein for the Palmer Tyre are skillfully stowed away in the form of episodes, some absolutely hilarious, or in terse phrases illustrating what not to do with a tyre, as, for example, when the garage man tells the Tyro, who thought oil was a preservative, "If you want to keep your tyres standing in pools of oil, don't get rubber ones. Get some made of sardines."

Copies of the book can be had post free from the Palmer Tyre Ltd., 119, 121, 123, Shaftesbury Avenue, on mentioning "The Aeroplane."

The London-Paris-London Race.

The above race, starting and finishing at the London Aerodrome, Hendon, N.W., will take place on Saturday, July 11th, 1914, for the following prizes:—

Fastest Time, 1st prize £500, presented by the International Correspondence Schools.

Handicap, 1st prize £300, presented by the Royal Aero Club; 2nd prize £150, presented by the International Correspondence Schools; 3rd prize £50, presented by the International Correspondence Schools.

Chief Regulations. Date of Contest.—The race will start from the London Aerodrome, Hendon, on Saturday, July 11th, 1914, and competitors will leave the starting line in the order of their respective handicap times, the limit man starting at 5 a.m.

Entries.—The entrance fee is £5 per aircraft, and entries will be received up till 12 noon, Saturday, June 27th, 1914. Late entries will be received up till 12 noon, Saturday, July 4, 1914, in which case the entrance fee will be £10. The entrance fee will be returned to each competitor who completes the course by 10 p.m. on Saturday, July 11th, 1914. The entry form, which must be accompanied by the entrance fee, must be sent to the Secretary of the Royal Aero Club.

Course.—The course is from London to Paris and back starting from the London Aerodrome, Hendon, via Harrow, Epsom and Boulogne to Buc Aerodrome, near Paris, and the return journey is from the Buc Aerodrome, near Paris, via Folkestone, Epsom and Harrow to the London Aerodrome, Hendon. In passing Harrow, Epsom and Boulogne on the outward journey and Folkestone, Epsom and Harrow on the home journey, competitors must fly sufficiently low for their numbers to be easily verified by the observers at these points.

Should no competitor have completed the course by 10 p.m. on Saturday, July 11th, 1914, the Royal Aero Club reserve the right to extend the period or declare the race off.

Order of Starting.—Competitors will be started at their respective handicap times. Each aircraft will be allotted a number, which must be conspicuously displayed under the wings or planes of the aircraft in a position approved by the officials. [This strikes one as needing alteration; the slowest machine may have five hours' start of the scratch man, who thus would not leave till 10 a.m., and so would be almost compelled to finish in the dark. It should be made a sealed handicap like the Aerial Derby.—Ed.]

Arrival in Paris.—Competitors will be required to make a compulsory stop of one hour at the Buc Aerodrome. The time of arrival of each competitor will be taken at the moment of alighting within the boundary of the Aerodrome. This stop of one hour may be utilised for replenishments and such repairs as are allowed. On the return journey competitors will be officially restarted at the expiration of one hour from the time of their alighting. Any time spent in the Aerodrome beyond the hour will count as flying time.

Handicapping.—The handicapping will be carried out by the handicappers appointed by the Royal Aero Club. In order to assist the handicappers, each competitor will be required to make speed tests over a measured course. The number of tests will be at the discretion of the handicappers, and these speed tests will be carried out on the day preceding the race as follows:—

Competitors must have their aircraft completely erected at the London Aerodrome, Hendon, N.W., not later than 10 a.m., on Friday, July 10th, 1914, and the pilot and aircraft must be at the disposal of the officials at and from that hour until 6 p.m. for such speed tests. After the tests have been completed, no alterations or adjustments to any part of the aircraft may be made except with the permission of the officials. This shall not be taken to include general adjustments of the motor.

Stoppages en route are not prohibited.

Shed Accommodation.—The aircraft of competitors who are not already tenants at the London Aerodrome will be housed free of charge from 9 a.m. on Thursday, July 9th, 1914, till 6 p.m. on Monday, July 13th, 1914.

Competitors must be equipped with life belts or other appliances for keeping themselves afloat.

A Visit to Eastbourne.

If there is a pleasanter place at which to live while learning to fly than Eastbourne I shall be glad to see it. Also, I do not know of any other place where a pupil can study both land- and sea-planes. Therefore, when the Eastbourne Aviation Co. claim that they offer advantages to would-be fliers, one can recommend that attention be given to their claims. Incidentally, anyone visiting Eastbourne by car is warned to go via East Grinstead and Cuckfield; the Tunbridge Wells and Mayfield road is not only hilly, but it is never straight for more than a hundred yards, and the aborigines, who affect the use of three-horse wains, wander aimlessly about the road round blind corners, which proclivity accounted for the editorial Calthorpe reposing for a period in a ditch, during which period another aborigine in a pony-trap, also on his wrong side, collected a mudguard with his axle-cap. Truly a cheerful people.

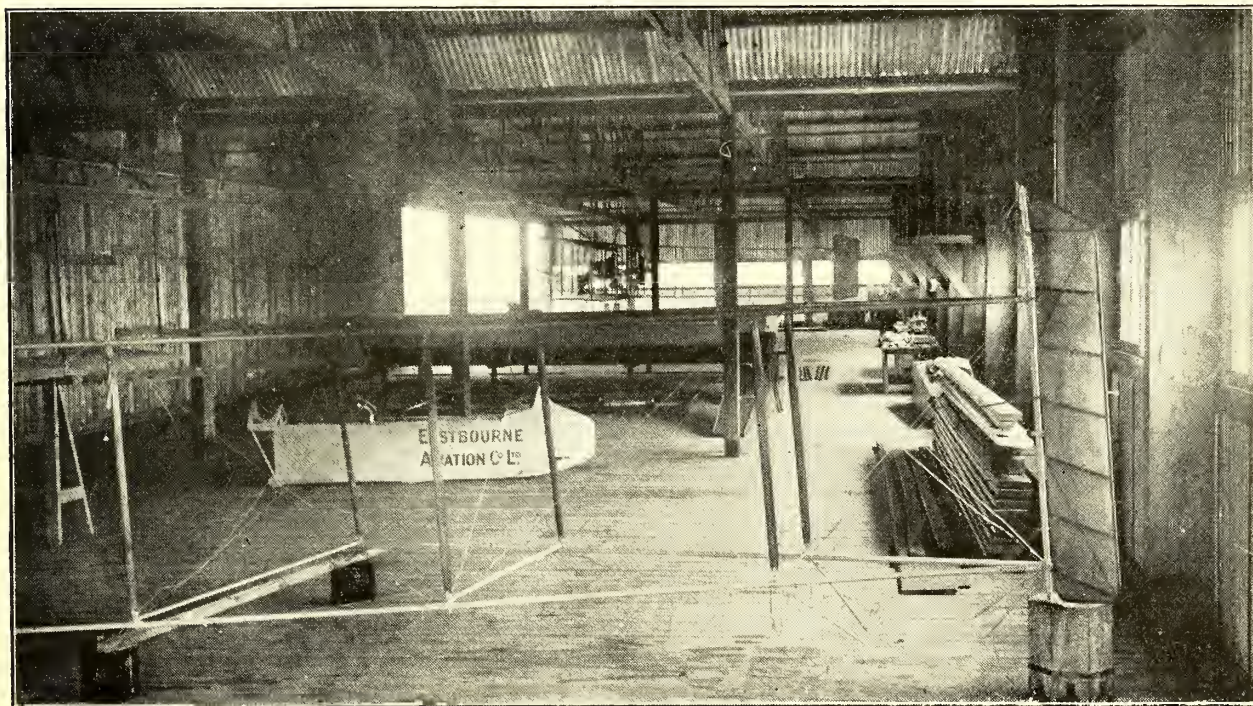
However, Eastbourne itself compensated one for much. The aerodrome itself is thoroughly well laid out, and well managed. The machines are kept in excellent order. The workshops, under the charge of Mr. Frank Hucks, a very capable engineer, are well equipped with modern appliances, and only workmen of proved ability are retained. There are enough machines for many more pupils than the school has at present, and even if the school were crowded, the workshops would see to it that machines damaged by pupils were not laid out for long. At present the machines used for pupils are Henri Farman box-kites, but tractor biplanes and monoplanes are being built.

Mr. F. B. Fowler, the managing director of the firm, sees to the instruction himself, and Mr. Morgan, formerly a pupil at the Bristol School at Brooklands, has just signed on as assistant instructor, in place of Mr. Gassler, who has joined Vickers Ltd. as a designer. Mr. Fowler is a particularly neat and finished flyer. Skilful in his handling of machines, and clever enough when need be in doing fancy turns, he is in a general way a steady, safe pilot who at once inspires one with confidence. For this reason he has been very successful in turning out thoroughly capable aviators. It is not his fault if some of them have done strange things with aeroplanes in the air and on the ground after leaving his care, and on the whole an Eastbourne-trained pilot is a good pilot.

Unfortunately, when I was at the aerodrome the neat little tractor biplane which was so much admired at Olympia was still untested, everyone having been so busy getting the school machines and seaplanes ready for the summer. The seaplanes have already been very busy. On Easter Monday last, Mr. Fowler took up 32 passengers, which is about a record for a day's seaplaning, I should think, and on May 29th, when I was down there, he took up half a dozen passengers in a little over an hour. His get off and alighting on the sea are particularly neat, so one can recommend him as a pilot even to the most nervous passenger. When passenger-carrying is in progress Mr. Fowler operates from the beach close to the pier, so he is quite handy for visitors.

The seaplane station itself is not far from the aerodrome, and both can be reached by motor-bus from the town. This station should be very useful a little later on, when sea-flying becomes common, and the Admiralty has shown its wisdom by subsidising one of the sheds for the Navy's machines. The three big sheds, all in one rank, are well protected by banks of shingle, and yet can be reached easily in any state of wind or tide. A new rail-slipway is being built, and is being equipped with a highly ingenious turntable arrangement of Mr. Hucks' invention, so that the biggest machine can be turned easily into any shed. Also, a high fence encloses the machines from curious eyes when they are outside the sheds.

Taking it all round the Eastbourne Co. are showing highly commendable energy which one could wish to see emulated in other parts of the country, and one hopes to see their enterprise rewarded by the support of those who are able to support them, either by flying as passengers, joining the school as pupils, purchasing their soundly built machines, or simply by garaging machines at the aerodrome or the seaplane station, as is frequently done both by the Navy and Army. A number of the Naval pilots have visited Eastbourne, and only a week or two ago No. 5 Squadron, R.F.C., under Major Higgins, arrived "en escadrille" and stayed overnight. In any of the firm's phases of activity one can always rely on a square deal, and the visitor is sure to be charmed by the courtesy of the heads of the business.—C. G. G.



The interior of the three seaplane sheds erected by the Eastbourne Aviation Co.

Whitsun at Hendon.

The Saturday before Bank Holiday provided excellent sport and some fine exhibition flying also. The race of the day was for the "Telegraph" Cup. In the first heat Messrs. A. Barrs (G.-W. box-kite), R. Carr ("Lizzie"), W. Brock (Blériot), and Howarth (G.-W. box-kite) finished in that order. At the start someone hung on too long to the right wing of Mr. Goodden's 80 Morane, with the result that she switched round and charged the railings. Mr. Goodden kept his head, as usual, and switched off his engine when he found he could not get her straight, with the result that the Morane simply knocked down a section of rails and stood on her nose without hurting anyone. This fractiousness at the post is unusual even in the most highly-bred aeroplanes. One has known them sulk and refuse to start, and even to kick before getting off, but jumping the rails is a new vice. One presumes the start for the Derby on the previous Wednesday must have set a bad example.

The second heat provided a very close finish, Messrs. Lillywhite (box-kite), Verrier (M. Farman), and Birchenough (now promoted to the G.-W. "Maurice") all finishing inside a second, with M. Noel on the 80 Blériot one second behind the third man, a fine piece of handicapping. In the final the finish was badly spread out, M. Verrier winning by 10 secs. from Mr. Barrs, with Messrs. Lillywhite and Carr behind him.

During the afternoon Mr. Goodden looped on the Morane, and Mr. Carr on "Lizzie," and the parachutist, Newell, dropped from the skid of the "char-à-bancs" piloted by M. Noel at 2,000 feet. The apparatus did not open for 300 feet, which caused some qualms among the audience, and came down outside the aerodrome behind the railway bank, although it had been dropped so that the wind should carry it inside the ground, thus showing the alteration in wind direction even at 2,000 feet.

Mr. Hall on his Avro did a capitally judged glide from about 6,000 feet with his engine absolutely stopped. Mr. Carr flew on the Blériot. M. Noel brought out a new Henri Farman (80 Le Rhone), the one which M. Verrier flew in the Monaco Rallye. This machine differs from previous "Henris" at Hendon in having more surface and two seats for passengers. Also she has extra bracing on top for looping, and the chassis is of the new half-hoop type. As in all Farmans, the finish is of the very best, and the machine appears to fly strongly despite her extra size and weight, which is evidence of the efficiency of the Le Rhone engine. M. Verrier tested the machine before M. Noel took her over, and performed with his usual agility. Mr. Zubiaga flew well on his Caudron, but deteriorated his chassis in landing. Mr. Brock, whose return to Hendon is very welcome, flew a Morane with his usual skill.

On Sunday there was quite a fair crowd, although so many people were out of town, and there was much good flying till the rain came. Mr. Hall flew his Avro high and well. Mr. Lillywhite took many passengers on his box-kite, as did Mr. Birchenough on the G.-W. "Maurice." Mr. Carr looped on "Lizzie," and did fancy turns with his usual skill. Mr. Goodden was out on a Morane. M. Noel took up passengers two at a time on the new "Henri," and Mr. Grahame-White took several people on the same machine, handling her with characteristic neatness.

While at Hendon on Sunday the writer had the opportunity, thanks to Mr. Clement Greswell, of inspecting a new British-built Maurice Farman which has just been turned out for the Admiralty. The workmanship is quite up to the highest Farman standard, and a very neat dual control system is fitted. Altogether she is a very handsome job, though just why the Navy ordered all the wires to be painted white is not apparent. They are distinctly suggestive of a bird-cage, though the dual control seems to indicate that the machine is intended primarily for male passengers.

Various little improvements are being made in Messrs. Mitchell's tea-sheds at Hendon. Among them a small bandstand has been erected at the top end of the paddock enclosure, wherein a decent string band performs with reasonable energy, a decided improvement on having a feminine performer inside the tea-shed itself producing rag-time songs with the voice

of a syren (steam variety) down the back of one's neck. Also straw-hats of the "high-school girl" type have been served out to waitresses, which impart a pleasing, if sometimes deceptive, air of youthfulness to the entourage, and anyhow remove the impression of an elaborately dressed hayrick which one sometimes sees on a windy day.

Visitors with cars should note that in spite of the expense the car-stands behind the rails in the paddock have been made into a good firm cinder-path, so that even on a wet day there is none of the old trouble in getting a car out of the clay. Altogether Mr. Gates is doing his utmost to deprive the British subject of his, or her, prescriptive right to grumble, and all foreign visitors admit that there is no aerodrome abroad which is anything like so comfortable or well managed as is the London Aerodrome.

On Monday a windy and threatening morning gave place to a perfect afternoon, during which flying was continuous, starting early in the afternoon by exhibition flights and ending officially about 6 by a display of looping by Messrs. Carr and Goodden. Quite early in the afternoon Mr. Brock climbed to 8,300 ft. in a Morane, and in landing failed to flatten out early enough, bending both axles and smashing the propeller. The first two heats of the speed handicap both resulted in very close finishes.

After an interval of passenger carrying and exhibition flights, Mr. J. L. Hall on his Avro made a long flight Harrow-wards, returning to the aerodrome at about 1,000 feet with his propeller stationary, he then dived his machine till the propeller was running fast enough to start up the motor, and flew another circuit or two.

The cross-country race for the Giesler trophy was then run



Mr. Victor Mahl, the new crack pilot of Sopwiths, a likely Aerial Derby pilot.


ACCLES & POLLOCK, LIMITED.

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
ONE QUALITY—THE BEST

OLD BURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections,—Post Free
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works: **BROOKLANDS AERODROME, WEYBRIDGE, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone: Byfleet 190.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

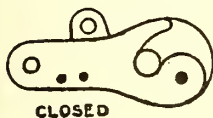
CELLON

DOPES 9 and 10 Make the FABRIC FIREPROOF

CELLON, LTD., 17, OLD BROAD STREET, E.C. Telegrams: "AJAWB LONDON." Telephone: 5359 London Wall.

RELEASE GEARS for AEROPLANES

REG. PATENT N° 17,090-11.



CLOSED



OPEN

SPECIAL STEEL STRAINERS, EYEBOLTS, BOLTS and NUTS, ETC. ALSO ENGINE HOUSINGS, and STEEL TUBE WORK.

Prices and Catalogue Free.

RUBERY, OWEN & CO. DARLASTON, SOUTH STAFFS
Manufacturers of Aeroplane Accessories.

FOR EFFICIENCY
& RELIABILITY IN

AERO-RADIATORS

Send your enquiries to
the well-known radiator
experts

The Motor Radiator Mfg. Co.,
GREET, BIRMINGHAM.

Telegrams: **NERLEAK, BIRMINGHAM.**

Telephone: **455 VICTORIA, BIRMINGHAM.**

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

off round four laps of the Bittacy Hill course, again providing an excellent finish, M. Noel on the 80 Le Rhone Henri Farman winning by a few yards from Mr. Brock on the Blériot.

The Giesler trophy was thereupon presented to M. Noel, and very shortly after the final of the speed handicap was run off—resulting in a win for Mr. Grahame-White on "Lizzie," with Mr. Noel on the Henri Farman a close second, and Messrs. Verrier and Birchenough dead-heated for third place.

Thereafter the looping display by Messrs. Goodden and Carr took place, and the 6 o'clock bomb announced the conclusion of the programme—though the Avro and the Blériot were flying till considerably later.

Whit Monday at Brooklands.

There was a goodly display of flying on Monday, the usual race bringing out an interesting if rather small field. The handicapping was poor, resulting in a runaway win for two box-kites, Mr. Knight, on a new Vickers, being first, with Mr. Stutt, on a Bristol, fairly close up, and the rest far behind. Mr. Waterfall, on the Martinsyde, flew a good race, but could not make up the start given to the box-kites. Mr. Alcock, on the Sunbeam-Farman, and Mr. Mahl, on an 80 Sopwith, also flew well, but the feature of the race was the duel between Mr. Pixton, on a Sopwith "tabloid" (80 Gnome), and Mr. Sippe, on the Bristol "scout" (80 Clerget), the latter giving the former 8 seconds start and being beaten by a shade more.

The Bristol is certainly the faster machine, and has the more powerful engine, but Mr. Pixton more than held his own. Mr. Sippe flew with great skill, but, of course, he is not so used to the miniature type as is Mr. Pixton, and showed some lack of judgment in the course he flew. His cornering was excellent, but instead of being content to stop up where the outward sideslip threw him at the pylon he came down low again, and had to jump the railway bank every lap, a dangerous proceeding which placed him for seconds at a time in such a position that if his engine had stopped he could not have got round into the aerodrome, and could not have glided to a reasonable landing-place outside. It may be worth while to take risks in a classic race, but not in a £50 handicap, and, anyhow, his wavy course lost him a good deal of time. However, he has hands, and with more experience will make a first-class racing flier.

During the afternoon various machines were busy. Mr. Dukinfield Jones took many passengers on the D.F.W., as did Mr. Mahl on the 80 Sopwith, and Mr. Alcock on the Farman. Mr. Stutt took up Miss Billing (etat. 10) for her first flight, though she has lived at Brooklands for something like

four years. Great delight of the damsel. Mr. Gower flew well on a new 50 Blériot, and various flights were made by Messrs. Pixton and Sippe on the Sopwith and Bristol speed machines.

Doors for Aeroplane Sheds.

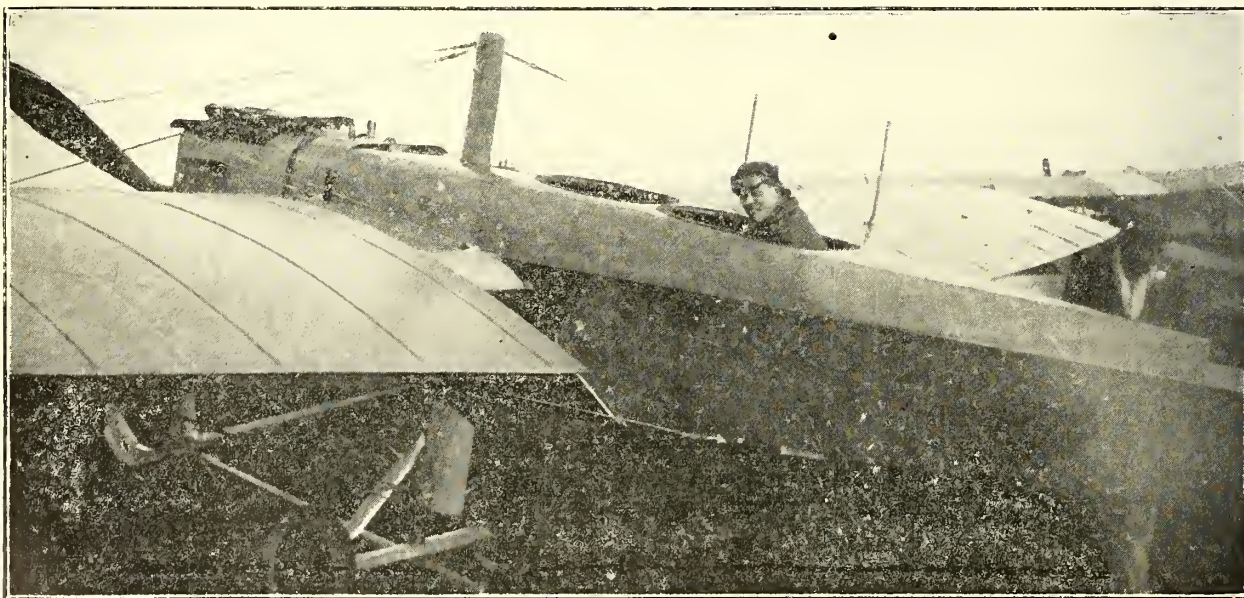
Some time ago a detailed description was given in these columns of the clever but simple sliding doors for aeroplane sheds patented by Messrs. Allport of the Wire-Wove Roofing Co., of 108, Queen Victoria Street, E.C. A set of these doors has recently been fitted to the new sheds erected at the experimental ground of Vickers Ltd. at Joyce Green near Dartford, and one hears that they are operating very successfully under circumstances which are by no means ideal. The rails on which the lower ends of the doors run should in fact be bedded on concrete, but at Joyce Green, owing to the constituents of Thames-side marshland not affording adequate support, the sheds have practically to be floated on rafts of railway sleepers, which naturally provide somewhat varied support. Nevertheless, despite certain inequalities of level in the rails, which have been duly adjusted, it is found that one man can without trouble push a 20-foot section of door with one hand round the track from the front of the shed to the side. Anyone who has handled the ordinary sectional doors of an ordinary 40-ft. shed will realise the comfort the Allport doors must be when it comes to opening the 80-foot sheds which are coming into vogue with the big seaplanes.

Recent experiences have suggested to the Messrs. Allport certain modifications and improvements which will make the doors still better for sheds of increased size, and of a strength guaranteed to stand up against not only the strongest wind but against the perfervid handling of the enthusiastic men of the Naval Air Service, even when in their most violent hurry.

Anyone erecting new sheds, or owning sheds which are intended to be permanent buildings and therefore worth fitting with doors to survive continual use, should certainly investigate the Allport doors, and the Wire-Wove Roofing Co.'s system of covering.

London-Manchester and Back.

It is now more than four years since M. Paulhan won £10,000 by flying from London to Manchester in 24 hours. The "Daily Mail" now offers a gold trophy for a flight from London to Manchester and back in a day. A race with this objective will take place on June 20, starting from and finishing at Hendon. Other prizes are a "Pratt's" trophy and £750 offered by the Anglo-American Oil Company (Limited).



Mr. Waterfall on the Martinsyde monoplane (120-h.p. Austro-Daimler) which he will fly in the Aerial Derby

The Week's Work.

Weather Report for Week Ending May 31st.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ..	—	—	—	—	—	—	—
Calshot	Fine	Fine	Fine	Show'y	Fine	Fine	—
Eastchurch ..	Windy	Windy	Windy	Windy	Fine	Fine	Fine
Hendon ...	Windy	Windy	Windy	Fair	Fair	Fair	Fair

Flying at Brooklands.

On Monday, Lieut. Joubert de la Ferté, on an 80-h.p. Blériot, left for Netheravon. In the afternoon, No. 6 Sopwith "tabloid" arrived. Mr. Sippe was out on the Bristol Scout, and Mr. Mahl flew the Sopwith "tabloid."

On Tuesday, Mr. Jack Alcock went to Hurst Park on the Sunbeam Farman. In the afternoon the Bristol pilots were very busy flying for a cinema drama, with the usual firing of revolvers and "face distorting" by the villain, etc. Mr. Waterfall was up on the Martinsyde.

On Wednesday, Mr. Gower, a new but clever pilot, recently appointed chief tester to the British Blériot works, was testing a Blériot. In the afternoon, Mr. Sippe was out on the Bristol Scout, and Mr. Dukinfield Jones, now engaged by the German Aircraft Works, was out on the D.F.W. There is no truth in the rumour that he has adopted the name of Herr Johannes Hertzoginfeldt. Mr. Barnwell was passenger-carrying on the 70-h.p. Vickers School biplane.

On Thursday, Messrs. Dukinfield Jones and Waterfall made several flights on the D.F.W. and Martinsyde respectively. No. 7 Sopwith "tabloid" arrived. Mr. Sippe was out on the Bristol Scout, and Mr. Jullerot was testing the Bristol School biplanes.

On Friday Mr. Dukinfield Jones was on the D.F.W. A Sopwith "tabloid" was also out. In the afternoon there were 14 machines either flying or on the ground at one time, these being Mr. Sippe on the Bristol Scout, three Sopwith "tabloids," and a standard 80-h.p. flown by Messrs. Pixton and Mahl, three Bristol School biplanes flown by Messrs. Jullerot and Stutt, Mr. Gower on a Blériot, a 70-h.p. and two 50-h.p. Vickers School biplanes, one, a new machine built in the Vickers School sheds, flown by Messrs. Barnwell and Knight, Mr. Jack Alcock on the Sunbeam Farman, and Mr. Lawrence Hall, who arrived from Hendon on a 50-h.p. Avro, with a passenger, and flew back alone. The Vickers "scout" was out taxi-ing.

On Saturday, Mr. V. W. Waterfall came back from Farnborough on the Martinsyde. Mr. Jack Alcock landed at Sunbury on the Sunbeam-Farman with Mr. Thomas S. Duncan as passenger, and returned to Brooklands. Mr. Mahl had his first flight on the 100-h.p. Sopwith "tabloid." Mr. Sippe flew the Bristol Scout, and Mr. Gower the Blériot. No. 8 Sopwith "tabloid" arrived, this machine having a Morane type V chassis.

Sunday was rather wet most of the afternoon, but Mr. Alcock took up the Brooklands ballot passengers and several others. Mr. Mahl was out on the 80-h.p. Sopwith, and Mr. Gower on the Blériot.

A new arrival of note is Mr. Steve MacGordon, the well-known Curtiss flying-boat pilot, who is learning to fly a Sopwith under Mr. Mahl's tuition. Mr. MacGordon seems to like the inhabitants of Brooklands and their ways, and one can assure him that the feeling is reciprocated.

Mr. Victor Mahl's progress as a pilot has been rapid. Last week, having then only flown the 80 Sopwith, he took out a "tabloid" and flew it with success, after which he did equally well on the 100-h.p. monosoupape Schneider Cup machine. In between he went to Isle of Grain, and for his first flight off water put a Sopwith "pusher" through its tests for the Greek Navy. However, one need not be nervous about his meteoric career, for he is only putting into practice theories with which he is thoroughly familiar, and his judgment of space, height, speed and distance is wonderful.

A new machine well worth watching is the Perry-Beadle single-seater tractor biplane (45-h.p. Anzani), one of the neatest and best made small machines yet seen. It bears a strong resemblance to a B.E., both Mr. Perry and Mr. Beadle having been at the R.A.F., but it has much originality.

At its low price it should find a ready sale among the rising generation of young sportsmen who are going to fly their own machines. In its earlier form it has flown well at Beaulieu, and its flying at Brooklands, where it will be flown by Mr. Glew, should add much to the growing interest of our earliest aerodrome.

Flying at Shoreham.

During the past week good work has been done by the various schools. On Tuesday and Wednesday last week Mr. Eric Pashley, now flying with all his old skill, visited Worthing, landing on the sands by the pier.

The work on the second machine of the Pashley School, designed by Mr. Eric C. Pashley, is being pushed forward, and it should be out for trial flights very shortly.

Recent Army visitors include Major Becke with A.M. Hart on an R.E., and Lieut. Lawrence with A.M. Downer, Lieut. Roche and Lieut. Marsh on B.E.'s. These flew over to Shoreham from Farnborough and returned the same day. More recently Lieut. Lawrence and another officer brought two Henri Farman over from the same place and returned.

The two sheds, 45 ft. by 45 ft. by 15 ft., being erected for the Cedric Lee Co., are nearly finished, and tennis is in full swing. Altogether prospects are bright at Shoreham.—E.L.D.

Flying at Hull.

On Friday, Saturday, and Monday last, Mr. Hunt and Mr. Orr Paterson gave demonstrations of flying at Hull. Mr. Paterson flew the Flanders biplane, which has now been fitted with a 70 Gnome with 80 h.p. valves. At first some trouble was experienced with the engine, and on Saturday the wheel axle was buckled owing to a landing on rough ground. Mr. Hunt flew his Blériot, which he proposes to have converted into a looping machine. Both aviators created a great impression in the city.

Flying at Eastchurch.

Mr. Alec Ogilvie was out twice during the week, on his 50 h.p. Wright. Mr. Leo Jezzi was out on Saturday evening and had a short flight on his own-made machine (35 h.p. J.A.P.), but stopped owing to engine trouble.

Trials on Southampton Water.

The Pemberton Billing machine was taken out for test last Saturday afternoon, but did not rise from the water, in fact it did not "plane" properly on the surface of the water. The Gnome (50 h.p.) engine is now mounted above the body and in front of the pilot. It drives two three-bladed propellers in the same manner as those in the Perry-Beadle show machine.

School Reports.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors: Messrs. Birchenough, Howarth, Lillywhite and Barrs. Pupils with instr on machine: Messrs. Shepherd, Liu, Wyles, Robinson, Lowe, Palmer, Gruning and Maj. Peck. Strts or rolls alone: Messrs. Robinson, Boyesen, Howett, Winter, Lowe. 8's or circs alone: Messrs. Weber, Boyesen, Cowley, Carpenter, Howett. Certificate taken: Mr. Carpenter. Machines in use: Grahame-White school machines.

AT HALL SCHOOL: Instructors: Messrs. J. Clappen and Virgilio. Pupils with instr on machine: Miss D. Clifford (passenger on Avro). Strts or rolls alone: Messrs. Gearing (12), Rose (4), A. F. Arcier (5), and Allen. 8's or circs alone: Mr. A. F. Arcier 3 circs at 300 ft, descending in graceful vol plané. Machines in use: Avro and Caudron biplanes; Deperdussin and Blériot monos. During week Mr. J. L. Hall took some 12 passengers on Avros. On Friday flew over to Brooklands with Miss D. Clifford, later returned to Hendon alone, descending at Southall owing to shortage of oil.

AT BRITISH CAUDRON SCHOOL: Instructors: Messrs. W. T. Warren and R. Desoutter. Pupil doing 8's and circs alone: Mr. Macgregor. Machines in use: Two Caudron biplanes (35-h.p.). Mrs. Buller and Messrs. W. T. Warren and R. Desoutter gave exhibition flights.

AT BEATTY SCHOOL: Instructor: Mr. Baumann. Pupils with instr on machine: Messrs. Ruffy (25 mins), MacLachlan (18), Dr. Roe (15), Messrs. Bentley (21), Elverson (10), Allen (25), Banks-Price (20), Boyesen (14), Cheung (7), Lt Macguire (6), Capt Bass (35). 8's or circs alone: Messrs. Watts (18), Stewart (15). Machine in use: Wright biplane (50-h.p. Gyro).

Telephones—
3846 City
4879 Central.

Telephone: DALSTON 1893.

Telephone : 880 Ilford.

THE DOPE

May be obtained from THE AEROPLANE, 166 Piccadilly, W.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

PASHLEY BROTHERS, SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

HALL FLYING SCHOOL.

HALL FLYING SCHOOL.—TUITION—Flying and Construction—given on

- A vro Biplanes.
- B leriot Monoplanes.
- C audron Biplanes.
- D eperdussin Monoplanes.

N.B.—Only tractor machines in use.

PASSENGER FLIGHTS.

Flying exhibitions.—Write at once for full particulars gratis to **HALL AVIATION Co., London Aerodrome, N.W.**

LIVERPOOL AVIATION SCHOOL, Waterloo, near Liverpool.—Tuition, passenger flights, exhibitions on Blériot monoplanes (3); Melly's infallible release gear; terms and prices on application.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London. Tel. 834 Bank.**

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—**Box 533, THE AEROPLANE, 166 Piccadilly, W.**

EMPLOYMENT.

BOATBUILDER wanted; previous experience of waterplane float work preferred.—Apply, stating wages and experience, to "E. O.," **THE GRAHAME-WHITE AVIATION Co., LTD., The London Aerodrome, Hendon, N.W.**

WANTED, first-class pilot for exhibition work.—Apply, Box 569, c/o **THE AEROPLANE, 166, Piccadilly, W.**

ERECTORS wanted; must have had previous experience; state references, salary, and experience.—**A. V. ROE & Co., Miles Platting, Manchester.**

MECHANIC, cycle and motor, seeks situation aero; good all round; excellent references; nine years' experience.—"W.," 20, Parson's Mead, West Croydon.

MISCELLANEOUS.

PHOTOGRAPHS.

THE favourite photograph of Mr. Gustav Hamel may be obtained from **F. N. BIRKETT, Photographer, 97, Percy Road, Shepherd's Bush, N.W.,** at the following prices, post free, unmounted:—12 by 10 in., 2s. 2d.; 8 by 6 in., 1s. 6d.; 6 by 4 in., 1s. 2d.—on mentioning **THE AEROPLANE.**

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT Co., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three-ply, Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON & SONS, LTD., 130, Hackney Road. 'Phone 4770 Wall.**

LUNCH, TEA, or SUP at—

"THE AERO RESTAURANT."

(Just outside the gates of the Hendon Aerodrome.)

Pretty Tea-Gardens, with awnings, for fine weather. Glass-sided "Sun-Parlour" for cold weather.

Best of Food, well cooked and neatly served.

Lunch from 1s. 6d.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.

MOISTURE PROOF.

Write for Price List and Particulars—
MENDINE CO., 3, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MODEL aeroplanes and accessories. Models from 1s. 6d. to 25s. Send stamps for illustrated catalogue.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

T. W. K. CLARKE & CO., Hampton Wick, Middlesex, for model aeroplanes and accessories. Rotary compressed air motors fitted with 16 in. propeller, £1 1s. Finest quality strip rubber, 1/4 in. and 3/16 in. wide, 1s. 4d. and 10d. doz. yds. Clarke carved propellers, 2d. per inch. Send for our lists containing over 120 items. Trade supplied.

STILL HOT FAVOURITES!

J. Bonn & Co., Ltd.,

97, New Oxford Street, London, W.C.,
The Leading House for

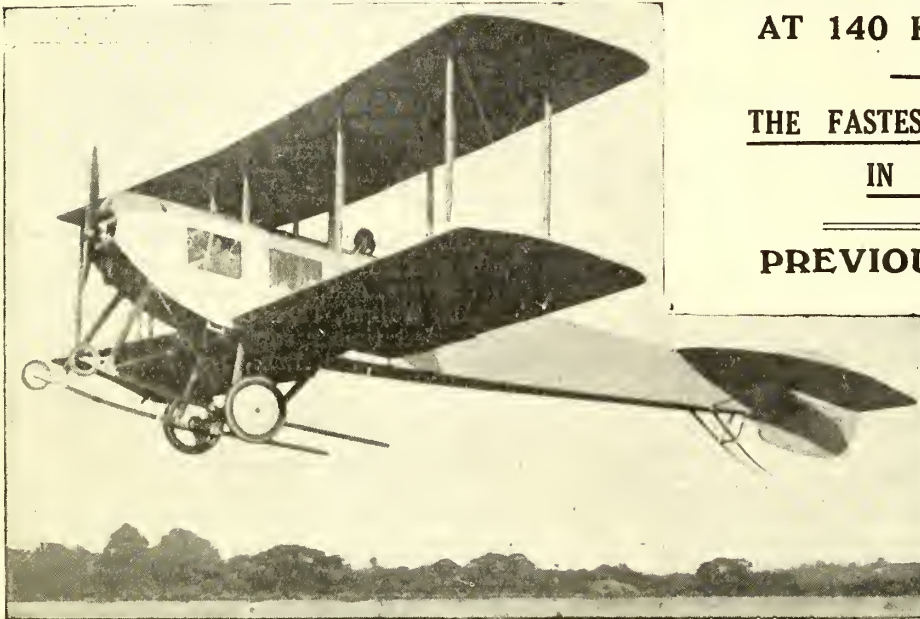
MODEL AEROPLANE ACCESSORIES.

BONN'S CELLULOID DISC WHEELS, 2 in., 1 1/2 in. and 1 in., 4d., 3d. and 2 1/2d. each respectively.

BONN'S GEAR WHEELS for making Geared Motors, etc., 1 in., 1 1/8 in. and 3/4 in., 6d., 5d. and 5d. respectively.

BONN'S FABRIC, 36 in. by 18 in., 1/3; 36 in. by 36 in. 2/6; weight per sq. yd., 7/8 oz.

— Catalogue on Application —

THE LATEST SOPWITH SUCCESS:—**WINNING OF THE SCHNEIDER CUP****AT 140 KMS. PER HOUR.****THE FASTEST HYDRO-AEROPLANE
IN THE WORLD.****PREVIOUS RECORDS on
the preceding type
of SOPWITH
BIPLANE (80 h.p.
Gnome).****British Height Record
(Pilot alone) 11,450 ft.****British Height Record
(Pilot and 1 Passenger)
12,900 ft.****British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.****WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.****ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.****THE SOPWITH AVIATION CO. Ltd.** (Contractors to His Majesty's
Admiralty and War Office.)Telephone: 1777 & 1343 KINGSTON. **Offices and Works : KINGSTON-ON-THAMES.**Telegrams:
"SOPWITH, KINGSTON."**THE AERIAL DERBY****For the "Daily Mail" Gold Cup
and "Shell" Prize of £400.****See the START (4.15 p.m.)
and FINISH (about 5 p.m.)****AT HENDON Sat. June 6**

(Postponed from May 23)

**Admission—1/6, 2/6, 5/6, 10/6. Motors,
5/- and 10/-. Gates open 12 noon. Looping
and Passenger Flights 1 p.m. to 4 p.m.****Air Racing and "Looping" every
Thursday and Saturday from
3 p.m.****Special Displays and Passenger
Flights Every Sunday Afternoon.****Passenger Flights daily from
£2 2s. 0d.****Admission 6d., 1s., 2/6 Children Half-price.
Motors 2/6 (Inc. chauffeur)****London Aerodrome, Hendon, N.W.***Proprietors:***The Grahame-White Aviation Coy., Ltd.****HENDON: Phone—Kingsbury 120 (4 lines).****Wires—"Volplane, Hyde, London."****LONDON: 166 Piccadilly, W. Phone—Mayfair 3955.****Wires—"Claudigram, Piccy, London."**

Write to Dept. A. London Aerodrome Offices, 166 Piccadilly, W., for a
free copy of the little booklet entitled "Wonderful Flying at Hendon,"
which contains numerous illustrations, a complete list of fixtures for 1914,
and particulars of passenger flights, routes to Hendon, season tickets, etc.

THE AEROPLANE

12
WEEKLY

Edited by C. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, JUNE 11, 1914.

No. 24

"AFTER MANY DAYS."



Three views of the Langley "Aerodrome" built in 1903 being prepared for the successful tests made on May 28th by Mr. Glenn Curtiss. Note the radial engine, the propellers of "Wright" form, and the king-posted wing structure—all 11 years old. The photographs appear by courtesy of Mr. Curtiss, from whom they have been received.

The "Bristol" Flying Schools

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

We invite you to come and have a TRIAL LESSON, the charge of which is £2 2s., to be refunded upon joining the School.

Our method of DUAL CONTROL ensures rapid and thorough tuition. Each lesson lasts fifteen minutes and training proceeds in winds up to twenty miles per hour.

**DON'T WASTE TIME WITH ROLLING PRACTICE:
GET INTO THE AIR AT ONCE.**

TUITION FEE, covering all charges on either the biplane or monoplane, £75.

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

166, Piccadilly, W.

Telegraphic Address: AILERON, London. 'Phone: Mayfair 5407

THE AEROPLANE should be on sale by all news-agents every Thursday morning. Readers are asked to report delay or difficulty in buying the paper.

THE AEROPLANE will be forwarded, post free, to any part of the world at the following rates:—

UNITED KINGDOM.				ABROAD.			
	s.	d.			s.	d.	
3 months, post free	1	8	3 months, post free	2	9		
6 " " "	3	3	6 " " "	5	6		
12 " " "	6	6	12 " " "	11	0		

NOTICES.

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

None of the other occupants of offices at the same address, whether concerned with aeronautics or not, is in any way connected with this paper.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

The Concentration Camp.

Whoever is responsible for the idea of the concentration camp of the Royal Flying Corps (Military Wing) at Netheravon deserves the thanks of everyone concerned with aviation, for it seems more than likely that it will have far-reaching effects on the future of military flying and so will influence to a very great extent the progress of flying in general.

So far as purely military training is concerned, the concentration will, of course, be of high value, for Salisbury Plain in the Summer gives opportunities of observing troops under something more like service conditions than does any other area, except, of course, during command manoeuvres, but the real utility of the scheme lies in the idea of getting the whole personnel of the R.F.C. together and letting them talk.

When I was at Netheravon last week the whole concentration had not been completed, but there were then something like seven hundred officers and men assembled, and the downs above the village had a very different appearance from that of a few months ago when I saw them last. The permanent station has been greatly increased in size. The men's quarters, comfortable looking, one-storey, concrete buildings, with tiled roofs, are now finished and the roads in and about the lines are properly laid out, so that the place looks less like a Western American "city" and more like a civilised habitation. Up at the sheds on the top of the hill proper workshops have been fitted up, with lathes and other necessary machinery quite capable of tackling any ordinary repairs. Each squadron has its own workshop, placed between the sheds and the road, and each shop is divided into two distinct compartments, one for machining and fitting metal work and one for wood work—a very sound idea keeping the two jobs apart. Across the road from the sheds are the blacksmiths' shop and forge, which it is always advisable to have quite separate from the machine shop. Also across the road are galvanised-iron sheds for the motor lorries and travelling workshops of each squadron, and various offices, such as one for a meteorologist, and a dark room for a photographer. At the lower end of the sheds is a high water-tower, a land-mark for miles round, with a fussy little oil engine in a hut at the base, busily pumping water from a well in the native chalk up into the tank, whence there is a constant supply to the sheds, workshops, and to the quarters down the hill.

The sheds are arranged *en echelon* in blocks of three, three blocks to each squadron, and as each shed will easily hold four aeroplanes of the present day there is actually room for thirty-six machines for each squadron, instead of the regulation twenty-four. The idea of building the sheds in "staggered" groups instead of in a straight line is presumably to prevent gales, for which the Plain is famous, from having a dead flat surface on which to operate, as is the case at Lark Hill, for example, where, if a door is opened at the front in certain directions of the wind, everything tries to go out at the back, like blowing an egg. The *echelon* arrangement causes each block of sheds to act as a "breakwater" for the next.

In front of the sheds is a broad strip of asphalt, on which machines can be handled in comfort in the wettest weather. The sheds are excellently built and equipped, and altogether the arrangement of the Netheravon station is excellent.

The Reconcentrados.

The visiting squadrons, or "reconcentrados" as some rude person has called them, are living under canvas. The term "reconcentrado" was originally applied to the women and children of the Cuban insurgents—or patriots, I suppose one should call them, as they eventually won their liberty—who were herded together by the Spanish general Weyler in unhealthy camps where they died multitudinously, and later the feminine and juvenile leavings of brother Boer on commando bore the same label in South Africa, the word being applied by "Old Barbarity" and his friends to imply that our military authorities were morally and humanitarily on a par with the late lamented Weyler. Why it has been applied to the visitors to Netheravon does not definitely appear. Whether it is intended to imply that they are poor little orphans far from home, or whether it is meant as a reflection on the provision of and provision by the organisers of the camp is not stated, but evidently it is intended to convey opprobrium to some whom.

As a matter of fact, the camp of the "reconcentrados" is an example of care and forethought for its inhabitants on the part of the officers responsible therefor, who even show their anxiety to better the lot of its inhabitants by seizing certain officers who habitually fly between Headquarters and Netheravon and then use the permanent mess of Squadrons 3 and 4, and heading them off into the temporary mess, whereby the messing expenses are minimised, on the principle that the greater the number the less the cost per head. The camp is beautifully situated on the slope overlooking the valley of the Avon, and is more suggestive of a co-operative Peace Convention picnic than of strenuous preparation for sanguinary war.

A Half-Holiday Visit.

The Fates being, in a manner, unkind, it befell that I journeyed thither on a Wednesday, which day is now observed by the R.F.C. as a half-holiday, a sound scheme highly to be commended from the point of view of those who fly from early morning till late at night whether wind and weather permit or not. However, intending visitors to the camp will do well to remember the custom and so avoid disappointing themselves and any friends they may take with them. Last week one Robert Loraine, a personage not unknown on the stage, and a pioneer of aviation in this country, who is notable as being the first man to fly to the Isle of Wight and the first to fly from Great Britain to Ireland, which he did in 1910, mark you, being desirous of impressing on a certain famous American author and his charming wife the progress of British aviation, and wishing to show them the aerial power of the Empire in full blast, inveigled them into conveying themselves, in a large Pierce-Arrow automobile of comprehensive comfort and speed, with him and me as official explainers, to Netheravon, and on arriving we found an atmosphere of Sabbath calm over everything. The camp slept under a blazing sun. The sheds were shut. A few strenuous officers and men played cricket in a hollow of the downs. No suggestion of an aeroplane could be seen. British air power did not exist, except in the person of a peculiarly energetic lark, who, seeing all the sheds closed, arose indecently in mid-afternoon and shrieked defiance to all the Gnomes and

Renaults which ever took the air. Then the official explainers started explaining why half-holidays were necessary.

However, the Fates having had their joke on us, compensated us generously, for we were permitted, thanks to the courtesy of Colonel Sykes, on whose shoulders rests the responsibility of the whole concentration, to inspect the visiting aeroplanes in their temporary sheds. Incidentally we have it on our consciences that we took up certain of Colonel Sykes' time, an ill-requit for his permission to view the machines and their housing, seeing that the longest day is too short for the work to be done in running the affairs of the R.F.C. (Military Wing). Therefore we all desire to express our sense of obligation.

Between the permanent sheds of Squadrons 3 and 4, and the men's quarters, a line of tents stretches along the road. At the top is the big Piggott marquee used so successfully at Lilbourne Camp by the Naval detachment on manoeuvres last year and apparently none the worse for wear. Here are housed the eight B.E.s of No. 2 Squadron from Montrose, looking somewhat weather-beaten, as is natural. These have the best housing of any visiting machines, for the marquee is lofty and airy and well-lighted, so that one can work in it comfortably in any weather even with the sides down. It takes some time to erect, but it is well worth using in any camp which is to stand more than a week or so, and when one reckons the amount of accommodation it provides one doubts whether it is not as handy, even for short periods, as a number of smaller tents.

The rest of the machines, those of Squadrons 5 and 6, and oddments of 1 and 7, are housed in R.A.F. tents, which, as Mr. Robey would say, are "solid, substantial, and thick." It takes ten men about five hours to put one up, which is worth while in camps which are to exceed a day or two in duration, and when the number of machines to be housed is not sufficient to make it worth while to use a big marquee. There are also one or two Hervieu tents, of the quickly erected type illustrated in this paper last year.

Appropos these little Hervieu tents, it seems to me that they have a sphere of utility of their own, namely, in connection with repair work. At present an aeroplane damaged in a bad landing some way from the base is packed all anyhow onto a motor lorry and brought back, in which process it is probably worse damaged than it was at first. If in every case of this sort where the repairs needed are not factory jobs, a travelling repair shop went out to the job, put a Hervieu tent over it and set to work on the spot, it would probably save much time and money, for the Hervieu of a size big enough for a Sopwith, B.E., or Farman, can be put up by five men in twenty minutes. It suggests itself that every workshop wagon should carry a Hervieu aeroplane tent and a Hervieu living tent as part of its regular equipment.

Squadrons 5 and 6 are mounted on Henry Farmans, Sopwiths, and Maurice Farmans (both "shorthorn" and "longhorn"), some B.E.2's, and a couple of 50-h.p. Avros. One gathers that though the last-named are of the 1912 type, without ailerons, a great deal of cross-country flying is done on them. They are used as single-seaters only. The rest of the same batch are now being fitted with ailerons, which should improve their lateral control considerably. Certain Avros with 80-h.p. Gnoms are on order, and it will be interesting to hear how the officers of the R.F.C. like these machines, which are of much the same type as that with which Mr. Raynham did so much good flying early this year. Some of the Henri Farmans are fitted with dual controls, and in some the passenger sits in front of the pilot, so that he can have an unimpeded field of fire, either with a gun or a camera. The "shorthorn" Maurices are said to fly well, but to be difficult to handle on the ground. This is ascribed to the rudders being so far apart that they miss the slip-stream of the propeller, and there is talk of fitting a third rudder in the centre of the tail to assist in this matter.

Aerial Photography.

Writing of cameras reminds me that much attention is being paid to aerial photography, and I was shown some excellent photographs taken by an officer of No. 3 Squadron that same

day from about 2,000 feet over various parts of the Plain with an ordinary Goertz camera and lense. Their clearness shows what excellent results may be obtained when telephoto lenses are used instead.

No doubt ordinary cameras will always be used for taking special photographs, but the best thing I have yet seen for aerial photography is the Autophote camera, invented, I believe, by Captain Fabbri, of the Italian Air Service, which is fixed at the bottom of the fuselage of an aeroplane and automatically changes its plates and sets its shutter. All the photographer has to do is pull a string, and by pulling at regular intervals one can obtain a regular "strip-map" of the route over which one is flying, or, of course, one can take only one photograph of a particular place if so desired. The only drawback to it is that if a plate breaks, or anything else happens to jamb the apparatus or put it out of order, one may have made a long and dangerous flight without results, therefore it might always be well to carry an ordinary hand-camera as a stand-by, the other apparatus being generally out of reach of the user.

Besides the Squadron machines, a detachment of the Air Park is at Netheravon. It has certain balloons and kites, and special experimental aeroplanes, such as those fitted with wireless apparatus. Much good work has been done with wireless for many months back, but, as Mr. Turner points out in "The Observer," we have not yet reached the stage of sending and receiving wireless messages over "hundreds of miles," as the daily Press would have us believe. Still, without giving away State secrets, one can say that our present range of sending is quite enough to be useful in time of war. The balloons will, one gathers, be used chiefly for meteorological work.

Airships for the Army.

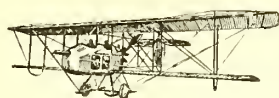
It seems that certain of the Naval airships may assist at the Concentration, and it is certainly desirable that they should do so. There are certainly many uses for airships in the Army, as the R.F.C. fully realises, and it appears that the utility of small airships may well be greater in peace than in war. Take, for example, this concentration. One of its objects is to find out the relative value of the various pilots.

One of the most valuable traits in a pilot is his ability to spot a good landing place when flying across country. Experience in doing so is only gained at much expense of broken machines, and possibly of personal injury. But suppose several small airships of the type fitted with the Willows swivelling propellers were available. Two or three aeroplane pilots might go up in one accompanied by a couple of senior officers. At a moment which seemed good to the latter one of the pilots might be requested to spot his landing place, being given a minute in which to do so. The airship would then descend, by means of the Willows propellers, without losing gas, and the proposed spot would be inspected from a height of a few feet from the ground, but without actually landing, and marks could be awarded according to the result. In this way a dozen or more "landings" might be made in the course of a morning without trouble, danger, delay or expense. Much knowledge of a pilot's judgment would thus be acquired, and as much really useful experience would be gained by the pilots in a few hours as would be got in months in aeroplanes by the process which the Naval Air Service tersely calls "navigating by landing and inquiry."

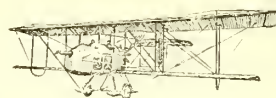
It strikes one that some such method of training might be adopted with advantage at the Central Flying School, where pilots are of necessity set to work to fly across country without ever having been outside an aerodrome.

Some Useful Tests.

A variety of interesting tests are being carried out at Netheravon, such as speed tests (both fast and slow, of course) of the various machines. These should be very instructive as showing the amount of deterioration caused by use in various types. It may also elicit some entertaining facts as to the differences in similar machines of like age and amount of use when cared for by the air mechanics of one squadron and another, or one flight and another. From what I heard and saw



LEARN
TO
FLY



AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS LIMITED,

Aviation Department, Vickers House,
Broadway, London, S.W.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,
AEROPLANE WORKS
AND
FLYING GROUNDS—
EASTCHURCH, ISLE OF SHEPPEY.

Telephone :—9, MINSTER-ON-SEA.

Telegraphic Address :—" FLIGHT, EASTCHURCH."

I should gather that there is quite a great deal of difference in this respect.

One particularly interesting test, for which, of course, only the more skilful pilots will be used, is that to find out how long it takes machines of various types to pull up after coming in over high hedges or trees. Two high posts have been put up with a thin cord, decorated with brightly coloured ribbons to make it easily visible, between them. The machines come in over this and pull up as near it as may be on a nice stretch of grass land. It would be worth while getting a series of kinematograph pictures of these tests. They would make a valuable study for those concerned with aeroplane design, and I believe they would interest the general public if the Army's new advertising department would circulate them among the "Palaces" frequented by patrons of "movies," provided the explanatory descriptions were skilfully written.

As a matter of fact a highly entertaining kinematograph show could be produced from various incidents at the camp if the said advertising department went about it properly. It is quite possible to interest the public in these matters, and if shown in the industrial districts I believe such pictures would produce useful recruits to the ranks of the air mechanics. Of course, they would have been shown with some horrible title, such as "Our Gallant Aerial Defenders at Work," or "A Day in the Life of an Army Airman," but then one must sacrifice something for one's country.

The Uses of Argument.

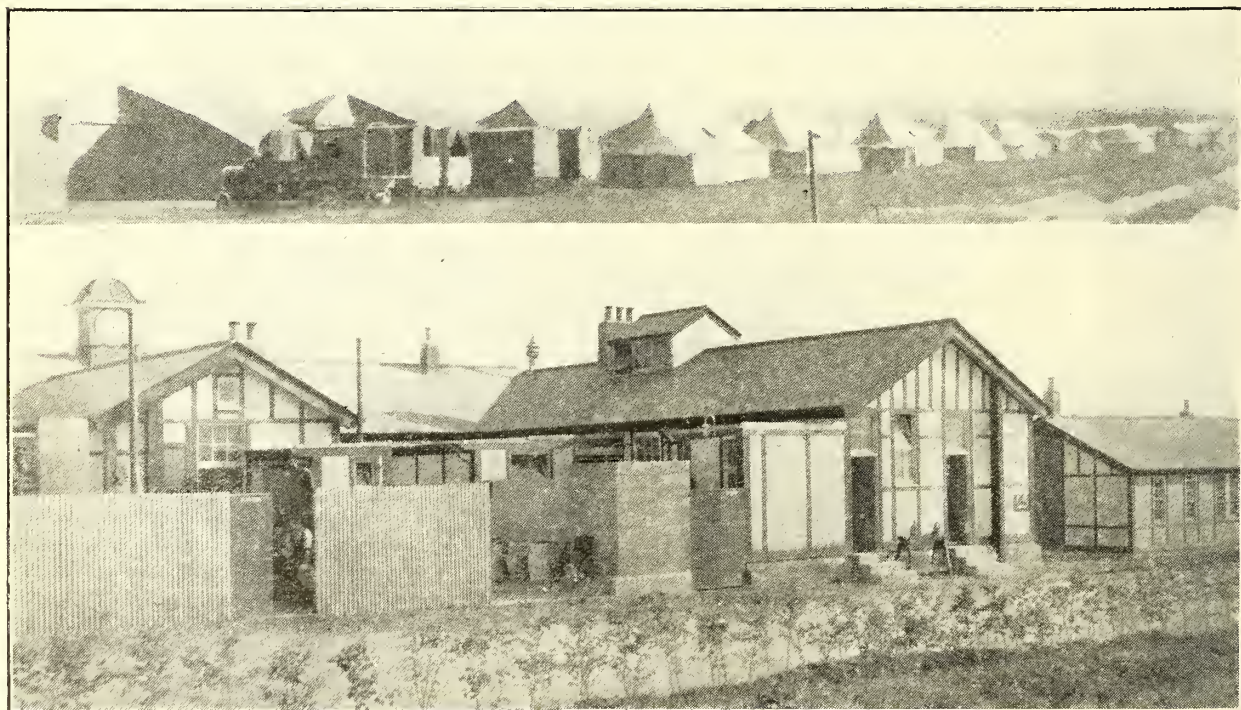
One of the most valuable features of the concentration is the series of lectures followed by discussions between all ranks, discussions which I gather are carried on with vehemence in the various messes afterwards. These embrace every possible phase of military aviation—repair work, design, engines, meteorology, woodwork, cross-country flying, methods of landing, reconnaissance, and so forth, are more or less formally debated, and the subsequent personal discussions apparently drag the moral characters, antecedents, and the prospects in the hereafter of the disputants into the debate.

You perceive that each squadron regards itself as the most efficient in the corps. No. 2 has flown all the way from

Montrose, or come by road, so it knows all about cross-country work and transport, but it only owns B.E.s and "mechanical cows." No. 3 has certain Blériot monoplanes, and it has experimented with machine-guns on Henri Farman's, also it has co-operated with field artillery, and it has flown at night. No. 4, the sworn ally of No. 3 when the "reconcentrados" arrived, whatever family quarrels they may have had when alone together, has had very similar experience. No. 5 owns Henri's, and Maurice's, and Sopwith's, and Avros, and an R.A.F. "bullet," and it lives at Farnborough, where it sees all the R.A.F. experiments, so it knows all about the latest fashions. No. 6 consists partly of drafts from Montrose, and it owns an R.E. or two, which are speedy and altitudinous and stable, and various other fine things. Therefore obviously each squadron has good reason for considering that it knows something the other squadrons don't know, and being pleased with itself in consequence. Thus, while the formal discussion under the presidency of a senior officer may be conducted with the utmost decorum, and with exceedingly valuable results, the sequels, as between man and man, very possibly proceed on the lines so graphically described in the phrase, "I ain't arguin' with yer, I'm a-tellin' of yer." And, mark you, when a discussion does reach that stage one is very apt to elicit valuable information bubbling forth in a moment of excitement to clinch an argument which would never come out in more formal proceedings. Personally, I have learned much more of practical value from a couple of experienced pilots fervently damning one another's eyes over some question of what a machine does or does not do under certain circumstances than ever I have from the genteel discussions of, say, the Aeronautical Society.

On somewhat similar reasoning the rivalry between the squadrons concentrated at Netheravon may result in the dissemination of much valuable information throughout the corps. One only wishes the accumulated wisdom of all therein concerned could be put into book form. It would advance materially the progress of aviation, but probably the editor and publisher would be sued for libel by every maker of aeroplanes and engines, from the Royal Aircraft Factory downwards—or upwards, according to how you look at it.—

C. G. G.



At Netheravon.—Above, the temporary sheds and workshops of Squadrons 5 and 6. Below—part of the permanent men's quarters of Squadrons 3 and 4, as seen from the road.

THE BEARDMORE AUSTRO-DAIMLER DESIGN AERO ENGINE

FITTED TO LOHNER BIPLANE

—: WINS THE:—

SCHICHT PRIZE

OFFERED BY THE SCHICHT CO. OF AUSTRIA, TO THE WINNER
— OF A CIRCULAR FLIGHT EXTENDING OVER THREE DAYS —

— PROVING IT YET AGAIN TO BE —
THE WORLD'S FINEST AEROPLANE ENGINE

BEARDMORE AUSTRO-DAIMLER AERO ENGINE, LTD.

Selling Representatives:—

AUSTRIAN-DAIMLER MOTOR CO., LTD.

112, GREAT PORTLAND STREET, LONDON, W.

C.D.C.

THE AERIAL DERBY 1914

2 HENRI FARMAN BIPLANES STARTED

2 HENRI FARMAN BIPLANES FINISHED

(2nd and 3rd).

The AIRCRAFT Co. Ltd.

Hold the sole rights direct from the Farman Brothers for the building of

HENRY & MAURICE FARMAN Aeroplanes and Hydro-Aeroplanes

In GREAT BRITAIN and the OVERSEA DOMINIONS

Works and Flying Ground:
HENDON.

Offices: 47, Victoria Street,
WESTMINSTER, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Technical Report of the Advisory Committee.

BY W. H. SAYERS.

Amongst the reports appended to this volume—which was briefly reviewed in *THE AEROPLANE* for June 4th—No. 72, dated March, 1913, dealing with experiments on models of aeroplane wings, contains a large amount of useful data.

The first series of experiments deals with the effects on the properties of aerofoils of altering the position of the maximum depth of camber. The experiments were conducted on a series of nine models all having a maximum depth of camber of the top surface of $1/10$ of the chord, and a flat lower surface. The positions of maximum camber were in No. 1, 0.500; No. 2, 0.380; No. 3, 0.355; No. 4, 0.332; No. 5, 0.310; No. 6, 0.292; No. 7, 0.252; No. 8, 0.220; and No. 9, 0.168, of the chord from the leading edge, No. 6 with the maximum camber 0.292 of the chord from the leading edge having a top surface similar to that of a Blériot wing, the remaining sections being modifications of this curve to suit the changed positions of the maximum ordinate.

The results of the experiments show that for this camber the lift to drift ratio is a maximum when the maximum camber is about $1/3$ of the chord from the leading edge, reaching a value of 13.9 at an angle of 4 deg. for No. 5. With the maximum ordinate in this position, however, there is a marked and sudden drop in the lift coefficient at an angle of about 12 deg. The report, therefore, suggests that a position of the maximum ordinate somewhat farther back—about $\frac{2}{3}$ of the chord from the leading edge—giving a maximum lift drift coefficient of 13.2 and avoiding this sudden drop at the critical angle, with its accompanying increase in drift, is advisable. The sudden drop in lift means, of course, that a machine will suddenly stall without warning and, if of normal design, side-slip and nose-dive.

The next series of experiments deals with the effect of thickening the leading edge of an aerofoil. Four aerofoils, all identical in section behind the point of maximum camber, but differing in the thickness of the nose, were tested. As this thickness increases the maximum lift to drift ratio decreases steadily, though the lift coefficient itself does not change so rapidly. The idea which was at one time somewhat prevalent that a blunt nose to an aerofoil was advantageous is therefore incorrect, though the results indicate that a slight thickening, which may be desirable for structural purposes, may be used without serious detriment.

Then follow the results of tests on four aerofoils denominated R.A.F. 3, 4, 5 and 6. These are all generally similar in top curvature, differing mainly in their lower surfaces. Nos. 4 and 5 are identical except in that No. 5 has a "Phillips Entry," while No. 4 is of normal shape, and the test results show no appreciable difference in their performances. One may, therefore, use a Phillips entry to provide room for a very deep front spar without damage to the qualities of the aerofoil. Of the four sections, R.A.F. 6, which has a very nearly flat lower surface, gives slightly the best lift to drift coefficient, about 14.5 between 4 degrees and 5 degrees, though having a slightly lower lift coefficient than the other sections. The exact curvatures of all these sections and their various aerodynamic qualities are set forth in full in the report.

The fourth series of experiments deals with the effect of increasing the thickness of an aerofoil in that neighbourhood usually occupied by the rear spar. At angles greater than 7 degrees this thickening appears to have no appreciable effect on the lift of the section, though at smaller angles the thinner sections give somewhat greater lifts. The lift to drift coefficients of the thinner sections are slightly better than those of the thickened ones, the maximum value of this ratio dropping from 14.6 to 13.0 with an increase of thickness of about 65 per cent., some $4/5$ of the chord from the leading edge, indicating that room for a reasonably deep rear spar may also be made without very serious loss of aerodynamic efficiency.

A series of experiments was made on an aerofoil at speeds varying from 10 to 50 ft. per second to discover in what manner the lift and drift coefficients vary with the speed.

These show that between the angles of 4 degrees and 14 degrees the lift coefficient is almost unchanged at speeds over 20 ft. per second. Below 4 degrees increasing the speed leads to an increase in the lift coefficient, and above 14 degrees the lift coefficient is again higher with higher speeds. The drift coefficients show over the whole range of useful angles a lower value for the higher speeds, indicating an increasing efficiency with higher speeds.

The maximum value of the lift to drift ratio rose from 10.5 at 10 ft. per second at an angle of $6\frac{1}{2}$ degrees to 17.6 at 50 ft. per second at an angle of $3\frac{1}{2}$ degrees. The improvement at higher speeds—whose existence has long been suspected by the present abstractor—is therefore considerable, and is most marked at fine angles.

In order to investigate still further the differences between model experiments and full-size machines, tests were made at the N.P.L. of small models of the large aerofoils which had been tested on a moving carriage in the open at St. Cyr (University of Paris).

As was to be expected from the results of the previously recorded set of experiments, the lift figures obtained from the small models agree quite well with those from the large aerofoils after certain necessary corrections have been made in the latter figures for the disturbing effects of the truck.

As regards the drift, however, the St. Cyr experiments show very markedly lower values than the small models. It is considered probable that much of the discrepancy can be attributed to the very small actual value of drift forces and the consequent difficulty of measuring them. The general conclusion from the whole series of experiments is that figures of lift values deduced from wind channel experiments at any air speed over 20 ft. per second may be expected to apply with fair accuracy to full size machines, but that the drift figures for model wings at the angle of greatest lift to drift ratio will be about 15 per cent. to 20 per cent. too high.

One of the small models employed in the last series of experiments was coated with fabric in order to discover whether the smooth surface of the models gave too low a skin friction as compared with actual wings. The results tend to show that this is not the case, and that the models used are not unduly polished.

In the next series of experiments a model aerofoil 15 in. by $2\frac{1}{2}$ in. of section R.A.F. 6 was warped—the central 3 inches being unchanged and the two outer 6 in. sections warped at the rate of plus and minus 1 deg. per inch, giving an increased angle of 6 deg. at one tip and one decreased by the same amount at the other tip.

The result of this warp on the actual lift is practically nil as long as no part of the wing reaches an angle larger than about 18 deg., which is a critical angle for this aerofoil, at which the lift starts to drop with increased angle. The maximum lift to drift ratio of the warped wing, however, is reduced from 14.6 to 12.3, the position of the centre of pressure remaining practically unaltered. The lateral force on the warped wing—i.e., the force tending to push the wing bodily sideways—was found to be negligible, about $\frac{1}{2}$ per cent. of the lift at 4 deg. mean angle of incidence.

The rolling moment—that tending to raise the wing with the increased angle—reaches its maximum value at a mean angle of 1 deg. (The mean angle is the angle of the unwarped centre section.) As this mean angle is increased this rolling moment decreases steadily till at about 12 degrees, when one wing tip reaches the critical angle, its value is only one half of that at 1 deg. From this point it falls very rapidly and becomes negative at a mean angle of 18 deg.

That is, when the warp is sufficient to produce an angle of incidence at the tip of 24 deg.—which may easily occur with a "stalled" machine—warping produces the opposite effect to that obtained under normal flying conditions, because between 18 degrees and 24 degrees—the angles of the warped-down side—the lift is actually lower than between 12 degrees and 18 degrees—the angle of the warped-up wing.

The steering effect of the warp was similarly found to reverse with increasing mean angles of attack. At angles of attack below 0.5 deg. the wing with the greater angle of incidence has least resistance and tends therefore to move forward. From that angle up to 12 deg. (where the critical angle is again reached), the steering effect becomes opposite in direction, but not particularly great in magnitude. Above that angle the increase is rapid. Hence, so long as no part of the wing reaches the critical angle of the section—which for all normal plane sections seems to be somewhere between 14 deg. and 20 deg.—warping produces a rolling moment in the required direction accompanied by a relatively small, and, therefore, controllable, steering effect in the wrong direction, but as soon as this angle is passed, as it is whenever a machine is stalled, both actions are in the wrong direction and both tend to increase very rapidly as the angle grows still larger.

The ninth and last series of experiments dealt with in this report relate to wings with turned up trailing edges, the object being to discover whether it was possible so to construct a wing that the movement of the centre of pressure might be eliminated or greatly reduced without any prohibitive loss in efficiency. With such a wing the tail of a machine is relieved of large variations in loading which are otherwise imposed thereon by variation of the angle of attack, facilitating speed variation, and also reducing the stresses transmitted through the fuselage or tail booms.

The models were all derived from an original very similar to R.A.F.6, the trailing edges were bent up to varying degrees and the point at which the bending occurred was also varied.

The Engine Competition.

There is not much news available concerning the Aero Engine Competition at Farnborough this week, but one gathers that a considerable amount of work has been done. The Argyll engine has been taken away, but for what reason has not been made known. The Green still awaits its new coupling in place of the official cardan joint and should have been running during this week. The 100-h.p. monosoupape Gnome did a 6-hour run quite satisfactorily and afterwards did a 10-hour, and its petrol and oil consumption are reported to be quite satisfactory. It is also reported that good work has been done by the 120 Beardmore Austro-Daimler. The Isaacson ran well, but seized up, owing, it is said, to a mechanic turning off the oil feed.

The Anzani having had the broken rocker bracket replaced, did its 6-hour run without trouble, and one gathers that it will now be put to further tests in the open on a wooden frame and driving a properly calibrated air propeller. Incidentally, tests of this kind are apt to be deceptive because when the engine is fixed on the ground a gust of wind coming from behind would cause considerable deceleration and a gust from the front would send the speed up. Mr. Sayers, who was working on the Avro biplane during the Military Trials in 1912, recalls that when running the 60-80 h.p. Green with the nose of the machine just outside the shed the engine ran some 80 r.p.m. faster than with the machine out in the open in a calm; the reason being the swirl of air set up inside the shed.

The Hart engine, which is a rotary engine with a peculiar arrangement of the valves on the top of each cylinder, suffered from some trouble and was withdrawn. Apropos of the withdrawal of the Centrum, one gathers that the starting clutch on the official shafting was insufficient to turn the engine over against the compression, which is not surprising considering that the engine is designed to give 200-h.p. and the clutch is comparatively small. In the ordinary way a very long starting lever is used, but owing to the arrangement of the testing machinery inside the cubicle there was not enough room to give the starting lever full play. An inspection of a drawing of this engine shows it to be not only of a highly original design, but to operate on a system which appears to have considerable merit—at worst, it is well worth to give it a thorough trial. The six cylinders form a solid unit with the driving shaft to which they are attached by their heads. The opposite cylinders fire at the same moment so that the strains on the main bearing are exactly balanced. The actual thrust

The results obtained are that the actual lift decreases as the turning up of the trailing edge increases, as does the lift to drift coefficient, and that with the amount of reversed curvature requisite to produce a stationary centre of pressure a reduction of some 12 per cent. in the maximum lift to drift ratio occurs, while the actual lift is diminished by twice that amount, or 25 per cent., which would entail a serious curtailing of the speed range possible on a machine possessing such wings, as well as decreasing its general efficiency.

One may point out that the loss of efficiency in this form of wing is only what might be expected, as the reversed curve at the rear edge seems likely to disturb the air flow over the whole wing. The effect of a stationary centre of pressure, or even of a reversal of its movement, may be obtained by the use of swept back wings with negative tips, an arrangement which should produce no disturbance to the flow over the central section of the wing, and may conceivably even produce improved conditions over some considerable portion of the surface. That no tests on such wings, and also on straight wings with a "wash out," have yet been published is to be regretted, and it is to be hoped that such tests, if not already made, may be carried out speedily, and the results published with somewhat greater celerity than has so far been customary. [Otherwise we may expect the results about this time in 1916, when a few more pilots have been killed on experimental machines through official delay.—Ed.]

The report is accompanied by a full set of tables and curves giving particulars of the various wing sections and of their performances, to which one must refer such readers as desire more complete data.

is taken from a rail running round the inside of the casing, on which each piston drives by a wheel on ball bearings. It is hoped that it may be possible in the course of a few weeks to publish drawings of this engine, which is very ingenious.

Incidentally, it is interesting to note that the prices of aero engines do not differ greatly from those of ordinary gas engines, power for power. A glance through any first-class gas-engine maker's catalogue will confirm this. Of course, the gas engine maker is more generous in the amount of material he gives one for one's money, but after all what one is buying is power and not pounds of metal, so apparently one has not as much cause to grumble at the exorbitant price of aero-engines as one thought.

The Seaplane Circuit of Britain.

The following entries have been received:—

Messrs. White and Thompson—

1. Curtiss biplane. Two 100-h.p. Curtiss engines. Pilot, Mr. A. Loftus Bryan.

2. Curtiss biplane. 125-h.p. British Anzani engine. Pilot, Capt. Ernest C. Bass.

Sopwith Aviation Co., Ltd.—

1. Sopwith biplane. 150-h.p. Sunbeam engine. Pilot, Mr. C. Howard Pixton.

2. Sopwith biplane. 100-h.p. British monosoupape Gnome engine. Pilot, Mr. H. G. Hawker.

Grahame-White Aviation Co., Ltd.—

Grahame-White biplane. 100-h.p. British monosoupape Gnome engine. Pilot, probably Mr. C. Grahame-White.

Messrs. A. V. Roe and Co., Ltd.—

Roe biplane. 150-h.p. Sunbeam engine. Pilot, Mr. F. P. Raynham.

Eastbourne Aviation Co., Ltd.—

E.A.C. tractor biplane. 120-h.p. Green engine. Pilot, Mr. F. B. Fowler.

Blackburn Aeroplane Co., Ltd.—

Blackburn hydro-biplane. 150-h.p. Salmson engine. Pilot, Mr. Sydney Pickles.

Late entries will be received up to 12 noon, June 30th, 1914, in which case the entrance fee will be £150.

Rule 4, "Qualification of Aircraft," has been revised and now reads as follows:—

The complete aircraft and all its parts, including the motor, must have been entirely constructed within the confines of the British Empire, but this provision shall not be held to apply to raw material, or the magneto.

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," June 5th.

Regular Forces, Establishments:—

Royal Flying Corps (Military Wing).—Lieut. R. Cholmondeley, Rifle Brigade (Prince Consort's Own), a Flying Officer, to be advanced to Flight Commander, and to be granted the temp. rank of Capt. whilst so employed (May 1st); Sec. Lieut. D. C. Ware, Special Reserve, to be appointed to the Reserve (April 28th).

Special Reserve of Officers.—Royal Flying Corps (Military Wing).—Sec. Lieut. (on probation) Denys C. Ware is confirmed in his rank.

NAVAL.

The funeral of Lieut. Thomas Scholes Creswell, R.M.L.I., took place on Monday at Haslar Cemetery with Naval honours. The Portsmouth Division, R.M.L.I., provided the funeral and firing parties and the Royal Naval School of Music the band. A party of fifty seamen from the Royal Naval Barracks and officers from all the ships in the harbour and naval establishments also followed. The coffin, which was draped with the Union Jack, was drawn on a gun-carriage by men of the Portsmouth Division, Royal Marines, the pall-bearers being Captains B. C. Gardiner, N. S. Clutterbuck, A. R. Maxwell, W. K. Garnier, and F. W. Horne and Lieutenants W. G. H. Miles, H. W. Wilby, and E. L. N. Bishop. The chief mourners were the late Mr Creswell's father and two brothers, and Mrs Jenner (aunt). Among the other mourners were Admiral the Hon. Sir Hedworth Meux, C-in-C. Portsmouth, and Staff, Vice-Admiral the Hon. Sir Alexander Bethell, representing the officers of the Royal Naval War College, Vice-Admiral R. N. Ommanney, and Rear-Admiral S. E. Erskine, representing the War Course officers, Brigadier-General E. C. B. Roe, R.M.L.I., and Commodore R. J. B. Keyes, Commanding Submarine Service.

* * *

At Eastchurch, Asst.-Paymaster Finch-Noyes left for Farnborough on Short No. 34 (50-h.p. Gnome) on Whit-Monday. No other flights were made. On Tuesday, Mr. Finch-Noyes returned from Farnborough, and Shorts Nos. 2 and 64 (50-h.p. Gnomes), B.E. No. 49, Caudron No. 45 (50-h.p. Gnome), and a Bristol tractor, No. 43 (80-h.p. Gnome), were in service. On Wednesday, M. Farman No. 188, B.E. No. 50, H. Farman No. 31 (70-h.p. Gnome), and Bristol tractor No. 43 were flown, and Lieut. Collet, R.M.A., arrived from Brooklands on the D.F.W. No. 154 (100-h.p. Mercédès). On Thursday, Lieut. Collet looped on Caudron No. 45. M. Farman No. 188, D.F.W. No. 154, Shorts Nos. 1 and 64, B.E. No. 49, Bristol No. 43, and H. Farman No. 31 also flew. H. Farman No. 31, M. Farman No. 188, and the Bristol No. 43 were the only machines out on the Friday. On Saturday, Short No. 1, Avro No. 150 (50-h.p. Gnome), and the Bristol (No. 43) flew.

Mr. Winston Churchill visited Eastchurch on Thursday, Friday, and Saturday of last week and made flights on a Maurice Farman in the company of Commander Samson, R.N. He also went out on a Short dual-control machine. He is expected to take his pilot's certificate this week.

On Thursday, the First Lord also visited the Isle of Grain and made a flight in a seaplane there.

* * *

At Calshot on Monday of last week there was no flying. On Tuesday, Mr. Gordon Bell put a 160-h.p. Gnome Short seaplane through its tests. A Wight seaplane was flying over the Solent, and the Sopwith gun-carrier (200-h.p. Salmson) was flying about Southampton Water. On Wednesday there was again no flying, as Lieut. Chambers, R.N., one of the officers of the Calshot flying-base, was being married. Major Gerrard, R.M.L.I., flew to the wedding on a Henri Farman.

On Thursday, War Staff officers visited Calshot. In the morning the machines out were the Wight, the Short, and the Sopwith (100-h.p. Green). In the afternoon the machines out were the Short, the Sopwith, and the Wight, the last causing the fatal accident to Lieut. Creswell, R.M.L.I., and Com-

mander Rice, R.N. There was no flying for the rest of the week.

* * *

On Tuesday several flights were made with the Short machines at Dundee. Capt. Barnby, R.M.L.I., made two flights and Capt. Kilner, R.M.L.I., one on No. 77 (100-h.p. Gnome), an air-mechanic being carried on each occasion. The flights were all over the district and at 1,000 to 2,000 ft.

On Thursday, Capt. Barnby, with an air-mechanic, flew to St. Andrews on Short 77 and was accompanied by Capt. Kilner on Short 75, who carried Petty-Officer Chidgey as passenger. On the return journey, when entering the mouth of the Tay, a tongue of flame leaped from the engine of No. 75 and scorched the passenger's face. It was immediately shut off and the machine planed down to the water, where it was discovered that one of the valves was "sticky." Capt. Barnby also descended to see what was the matter, and he hailed a passing tug, which took No. 75 in tow and brought her up to Broughty Ferry, where the launch from the base took her in charge. The injuries to the passenger were slight, owing to the rapid cutting out of the engine.

* * *

The First Lord paid his first visit to Shoreham Aerodrome on Monday morning last, when he was accompanied by General Sir John French, and witnessed several flights by Mr. Gordon Bell on a Cedric Lee monoplane. The "Enchantress" Admiralty yacht arrived at Portsmouth later in the day and Mr. Churchill left for London.

MILITARY.

The following communiqués have been received:—

Royal Flying Corps (Military Wing). Diary of work for week ending May 30th, 1914.

No. 2 Squadron.—During the week No. 2 Squadron with aircraft, mechanical transport and personnel, proceeded to Northampton from Lincoln, thence to Oxford. They all arrived at Netheravon on the 30th, and are now engaged in settling into the Military Wing Concentration Camp.

No. 3 Squadron.—Reconnaissance flights were made daily over Salisbury Plain and the surrounding district.

No. 4 Squadron.—The pilots of this Squadron were out practising observation every day.

Nos. 5 and 6 Squadrons.—Cross-country reconnaissances were made daily, the machines of both squadrons arrived at Netheravon for the Concentration Camp on the 29th and 30th. All machines, mechanical transport and personnel followed by road and rail.

Nos. 1 and 7 Squadrons.—These squadrons will remain at Farnborough during the concentration at Netheravon. Besides reconnaissance work they will be occupied with technical training.

H.Q. Flight.—During the week this unit was engaged in experimental work, the machines, mechanical transport and personnel reached Netheravon on the 30th instant.

Aircraft Park.—The Aircraft Park have sent on some of their plant to Netheravon. The remainder of the personnel and mechanical transport will proceed to the Concentration Camp on the 1st proximo.

General News.—Although all the machines and nearly all the mechanical transport and personnel have arrived at Netheravon, the Concentration Camp will not open officially until June 2nd.

A co-ordinated programme of progressive training has been drawn up by the Officer Commanding the Military Wing. The programme includes combined aircraft exercises and reconnaissances, mechanical transport convoy work, mobilisation practice and lectures and conferences on military and technical subjects.

Advantage will also be taken of the concentration to hold various inter-Squadron and Military Wing athletic competitions.

War Office, June 3rd, 1914.

THE GNÔME ENGINE COMPANY.

(SOCIÉTÉ DES MOTEURS GNÔME.)

To whom all applications for Gnôme
engines and spare parts should be made
for

Great Britain and the Oversea Dominions.

THE GNÔME ENGINE COMPANY,
47, VICTORIA STREET, WESTMINSTER, S.W.

THIRD AERIAL DERBY.

"Daily Mail" Cup and "Shell" £200 Prize.

WINNER

Mr. W. L. BROCK, on Morane (m.) 80 h.p. Gnome USED

'SHELL'

"Shell" Trophy and £200 Prize for Sealed Handicap

WINNER

Mr. W. L. BROCK, on Morane (m.) 80 h.p. Gnome USED

'SHELL'

THIS IS THE THIRD
TIME the Aerial
Derby has been won
on 'Shell.'—*Verb. sap.*



By Appointment

BRITISH PETROLEUM
CO., LTD.,
22, Fenchurch Street,
LONDON, E.C.

Royal Flying Corps (Military Wing).—Diary of work for week ending June 6th, 1914.

Concentration Camp, Headquarters, Headquarter Flight, Aircraft Park, Nos. 2, 3, 4, 5 and 6 Squadrons.

Work in camp opened on June 2nd. The Commanding Officer held a conference of all officers: he explained briefly the objects of the Camp, viz., to test in various ways the degree of training of personnel both on the ground and in the air, the work and handling of aircraft and transport, and experiments of numerous sorts; also the study and co-ordination, by means of lectures, discussions, conferences, and specially detailed committees, of the innumerable problems such as mobilisation, technical and military training, observation, workshops, stores, meteorology, wireless telegraphy, photography, bomb-dropping, and organisation of all sorts, which are essential to the rapid building up on an efficient basis of a Flying Corps.

The work indicated was at once started on these lines and continued throughout the week. Interesting speed, climbing and other tests were effected.

In the evenings inter-squadron competitions, cricket, football, cross-country running, boxing, sports, etc., are carried out. There is much keenness amongst the squadrons to win the challenge cups and prizes presented for these events.

Nos. 1 and 7 Squadrons and the Recruits Depot remain at Farnborough. The officers come to the camp as required to assist in various matters and to keep in touch with the progress of the work done. War Office, June 8th, 1914.

On Tuesday of last week a large amount of night flying was done by pilots at the Concentration Camp at Netheravon, Major Raleigh and Lieut. Gould, of No. 4 Squadron being in the air till after midnight. Various forms of lighting were tried, among them being acetylene flares with a hood over the top, so that the light was thrown onto the ground without dazzling the aviators. Lights were also carried on the machines.

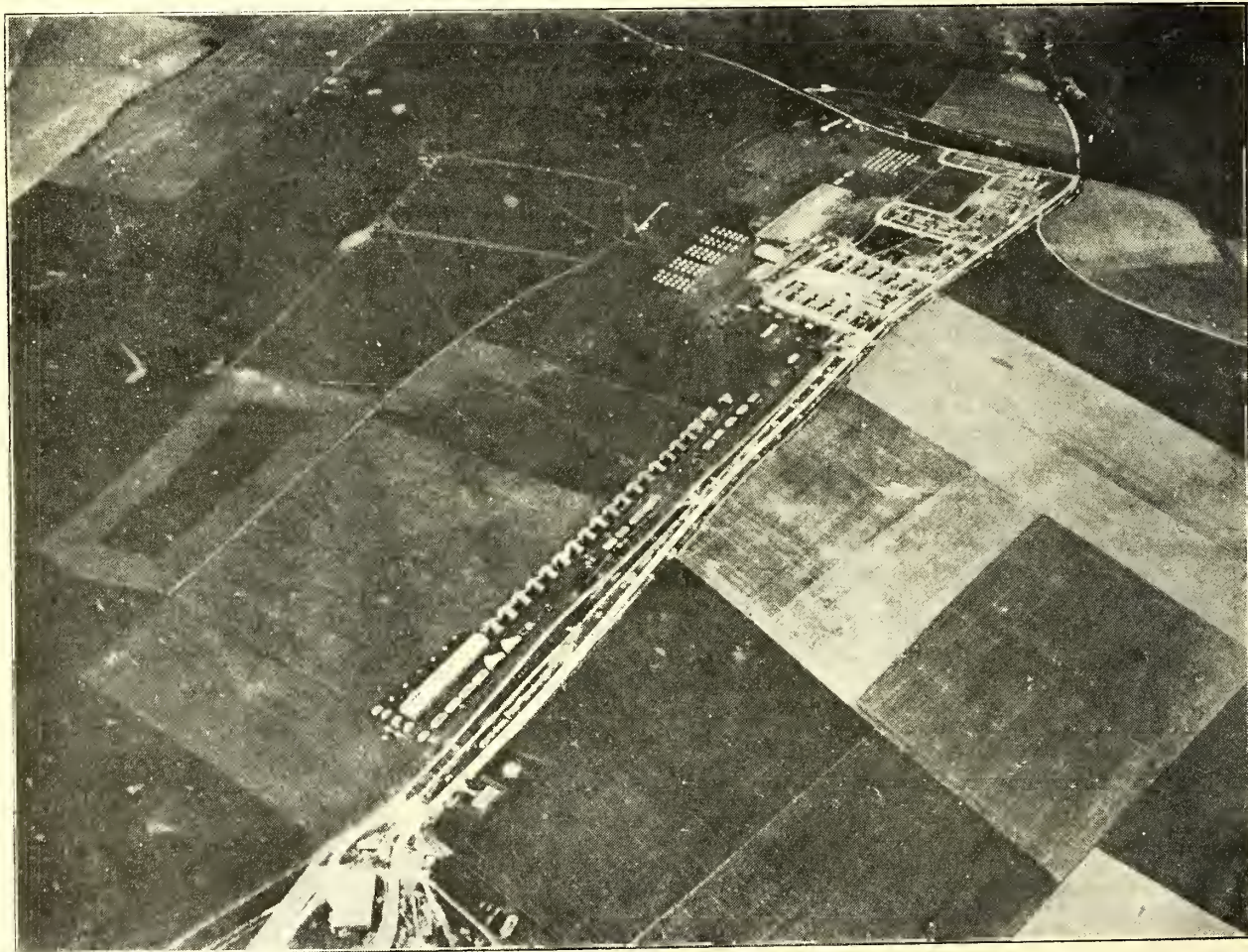
On Monday of this week the first big combined reconnaissance was carried out. Thirty machines, each carrying pilot and observer, set forth to locate on various parts of Salisbury Plain detachments of the Royal Flying Corps transport, which had been dispatched some hours before to destinations unknown to the pilots. The reconnaissance was accomplished with great success.

* * *

The Editor of *THE AEROPLANE* desires to acknowledge the courtesy of the Colonel-Commandant Royal Flying Corps (Military Wing), in giving permission to reproduce the photographs which appear in this issue of the Concentration Camp and of Andover, which were taken by an officer of No. 3 Squadron from a Henri Farman biplane.

* * *

One learns with interest that the Royal Aircraft Factory has succeeded recently in producing an inherently stable biplane of the "B.E.2c" type, on which Messrs. Spratt and Busk have been doing much flying. The machine resembles an ordinary Mark B.E.2 with a 70-h.p. Renault, but the tail plane is practically rectangular, more or less the plan shape of



THE CONCENTRATION CAMP AT NETHERAVON.—In the top right corner is Netheravon Village in the Valley of the Avon. The U-Shaped section is the officers' quarters, with the men's quarters in a square next them, and the tents of the "reconcentrados" in front of each. The long line of dots by the road is the temporary aeroplane sheds, with the big Piggott marquee at the end. At the bottom on the left is the beginning of the permanent sheds of Squadrons 3 and 4.

that of a Blériot, and absolutely flat, being merely a streamlined plane surface. When flown "hands-off" and "feet off," the machine retains its flying path according to the power given by the engine. If thrown on one side by the ailerons and then let go it returns to its proper position with alacrity. It is said that its worst trouble is in landing, as the small elevators fitted behind the big tail have proved insufficient to flatten it out quickly after a glide and that damage has been done to the chassis. One would suggest to the R.A.F. designers that they might experiment without elevator flaps at all, using simply a movable tail-plane, which would control the machine to any desired extent, and fit it so that as soon as the pilot releases the control lever the tail plane goes back to the neutral position which gives the desired inherent stability. That is to say, let them make a machine which is perfectly controllable when desired and inherently stable when left alone. It seems a reasonable proposition.

* * *

The B.E. 272 at Montrose, which was being made ready to fly to the concentration camp, was finished and Lieut. Rodwell made a trial flight on Wednesday evening. About 8.20 next morning (Thursday) he started, accompanied by an air-mechanic as passenger. Everything went well until, when over the Forth, the engine began to give trouble. It failed entirely a little later, and the descent from 1,500 ft. terminated in a field of hay near Drem, in North Berwick. The long grass got entangled in the wheels and the machine upset, smashing the propeller and skids and doing considerable damage to the wings. The pilot and mechanic escaped with slight bruises. The machine was dismantled and returned to Montrose.

Australia.

The Bristol-built B.E.s ordered by the Commonwealth were erected at the temporary aerodrome at Cook's Point, near Melbourne at the end of April. On May 1st. Lieut. Harrison, accompanied by Major Reynolds, of the Commonwealth General Staff, flew in one of these machines to Albert Park, across the mouth of the river and Port Melbourne, a distance of about 15 miles, arriving at 5,000 ft. and landing in a spiral glide. After some few minutes' stay at the Park, pilot and passenger re-embarked and returned to Cook's Point without event. The Australian authorities express great satisfaction with the machines.

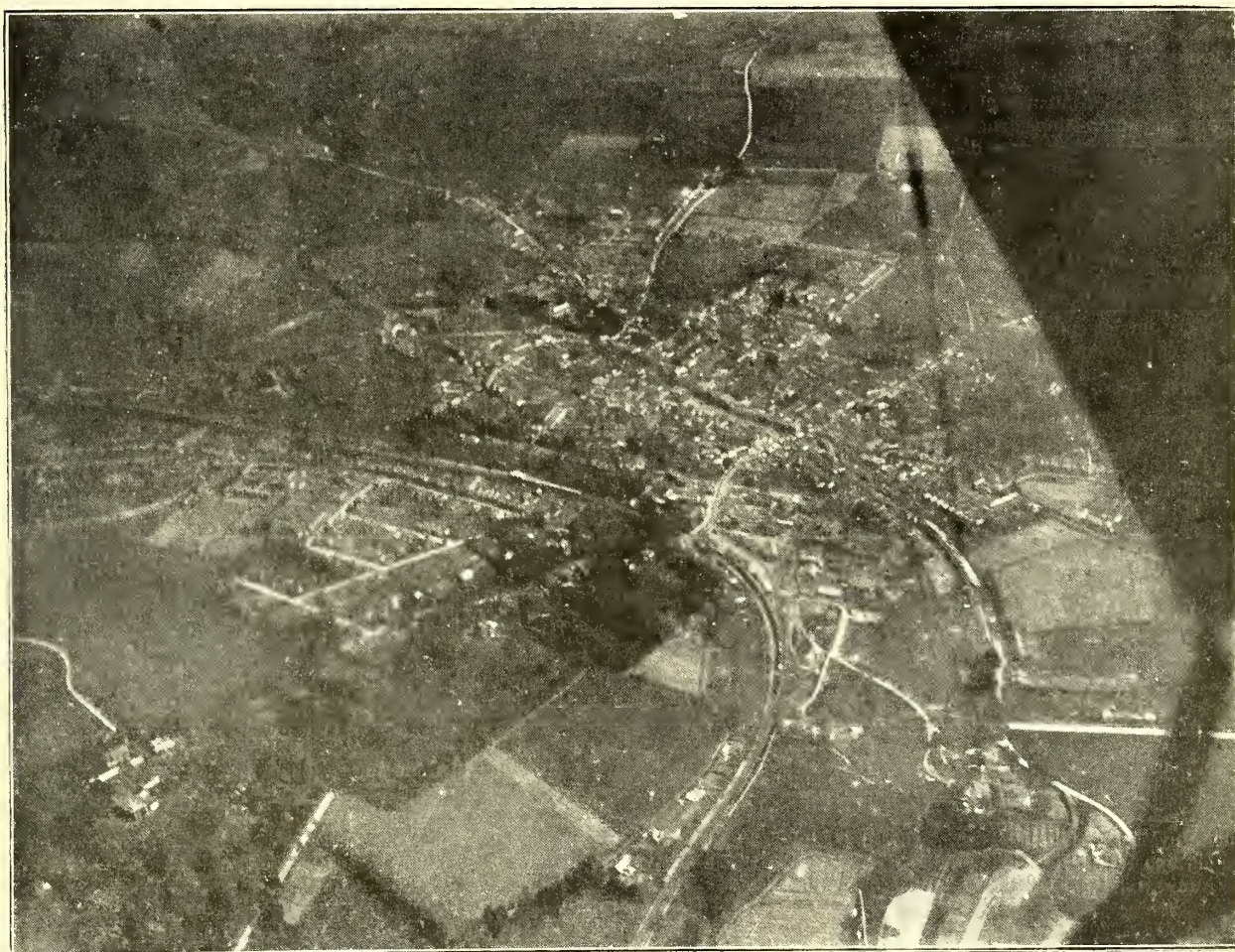
On the same day Lieut. Petre flew from Cook's Point to Gisborne, some 30 miles, and returned. The report does not state what his mount was. Lieut. Harrison seems habitually to act as mail-carrier between Cook's Point and the new Central Flying School at Werribee.

FRANCE.

On May 6th the dirigible "Fleurus" left its hangar at Verdun and flew over Briey and along the frontier. The Astra "Conté" flew for 4½ hours in the dark in the neighbourhood of Dijon.

On May 6th, Lieut. Levassor and Quartermaster Paumier, each accompanied by a passenger, flew from Mourmelon to Dunkirk.

On June 6th the official reception of the first escadrille of military aeroplanes designed by Commandant Dorand and built by the Voisin firm took place at Villacoublay. Many prominent aviators and constructors were present at the tests.



ANDOVER FROM ABOVE.—On the right is the lower plane, a chassis strut, and part of a wheel of the Henri Farman from which the photograph was taken. In the top centre is the fork of the London and Winchester roads, with Andover Junction in the foreground.

One of the types tested is a large fuselage biplane with slightly staggered planes. The machines have a well-streamlined fuselage in which is a 10-cylinder 100-h.p. Anzani motor, to which is directly coupled a tractor screw. A biplane elevator is fitted to the tail. One of the machines, which carries a wireless outfit, is fitted with a horizontal Salmson motor.

A second type is a strictly fighting machine, having an armoured fuselage and carrying a quick-firer in front of everything. On either side of the fuselage is placed a 140-h.p. Gnome in a streamline armoured casing, driving a propeller at the trailing edge of the plane, in the manner advocated in this paper recently. The two engines are coupled together to ensure regular running.

A Nieuport monoplane which was tested before General Bernard gave satisfactory results. The machine, which is armoured and carries a gun, flew at 145 k.p.h. with a passenger and full load, and climbed 500 metres in 3 mins. 45 secs. It landed within an enclosure 2 m. high and 150 m. long.

The Military Commission also inspected various Blériots, Voisins, Moranes, and a Ponnier, and watched a Bréguet-Bristol machine flying.

On June 5th, Capt. Boucher's escadrille left Dijon at 5 a.m. and was shortly afterwards overtaken by a violent storm. Five of the machines turned back and regained the aerodrome without incident, but the pilot of the 6th machine, Lieut. Adam-Girone, who was carrying his mechanic, decided to go on. When 26 kms. from Dijon he attempted to land, turned the machine over, and killed both himself and his passenger.

On May 5th three Deperdussins (80-h.p. Gnômes) were delivered to Capt. Destouches at Reims. They climbed 1,000 metres in 12 mins. and attained a speed of 115 k.p.h. Two 80-h.p. monosoupape Gnome-Deperdussins were also delivered, which reached 1,000 m. in 10 mins. and showed a speed of 120 k.p.h. A similar machine fitted with a quick-firer reached 1,000 metres in 6 mins. 30 secs. and travelled at 130 k.p.h.

In our French contemporary, "L'Aéro," of March 2nd there appears an interesting article on "Seaplanes at the Naval Manœuvres," by M. Eugène d'Aubigny, the substance of which is as follows: The machines in use are those at Toulon, which consist of two Bréguets, a Nieuport, and two Voisins; at Bizerta there are four Nieuports, and on the "Foudre" is a Caudron and a Voisin.

The nature of the operations gives the Bizerta escadrille the most important work. The assumption is that a fleet blockades the Port of Bizerta, in which a second fleet is locked, and a third fleet outside endeavours to operate with the besieged fleet, with a view to its succour. It is the object of the Bizerta escadrille to go out and discover the dispositions of the blockading fleet. The results are said to be most satisfactory. In 1912 only two machines took part in the naval manœuvres; in 1913 only four; for the first time this year there was a regular arrangement of escadrilles.

The four Nieuport monoplanes which were carried to the scene of operations packed up on the "Foudre" were assembled and left out in the open during the whole of the manœuvres. Although the weather was very bad at times, not a single order issued for reconnaissance work was left unfulfilled, and the information brought in is said to have been wonderfully accurate. The "scenic railway" on board the "Foudre," however, seems to have been a distinct failure, the efforts of the officers to leave it being somewhat acrobatic.

Morocco.

The Morocco escadrille is generally very active. Lieuts. Battini, Memard, and Cheutin, and Quartermaster Huard, have made the following flights: May 6th, Tunis-Ain-Beida, 280 kil.; May 7th, Ain-Beda-S'Mila, 270 kil.; May 8th, S'Mila-Chellaa, 220 kil.; May 11th, Chellaa-Le Kreider-Oudjda, 460 kil.; May 27th, Oudjda-Taza, 250 kil.; May 28th, Taza-Oudjda, 250 kil.; May 29th, Oudjda-Tendrara-Bou-Denib, 410 kil.; May 31st, Bou-Denib-Colomb-Béchar, 160 kil.

GERMANY.

On June 1st, Lieut. von Thüna, the winner of the Prince Henry Cup, flew from Cologne to Schleissheim, near Munich. Later, he continued his flight with Vienna as his objective.

A special alteration has been made in the official text of

public prayer to include aviators. The passage reads: "Protect the military power of the Kingdom of Prussia, together with the German forces both on the earth and on the sea, and in particular the vessels and aircraft during their voyages."

German S.W. Africa.

The aviation expedition to German South-West Africa sent out by the Mulhouse Aviatik Company and subsidised by the Imperial Colonial Office has been most successful, and the results are such that the official introduction of aviation into the Colonies there will be pushed forward as rapidly as possible. Ascents were made up to 1,400 metres. Willy Trueck flew from Karibib to Windhoek, a distance of 200 kilometres, in 1 hr. 55 mins., maintaining a height of 1,200 metres throughout.—B.

TURKEY.

On June 2nd, Fazil Bey fell with his monoplane at San Stefano and was seriously injured.

BELGIUM.

On June 5th, Capt. Deschamps, carrying Lieut. Noermann as passenger on a Blériot monoplane, reached a height of 2,400 metres—a Belgian record.

On June 6th the Kiwiet escadrille flew to Beverloo to take part in the manœuvres of the 3rd Division in spite of very bad weather. The aviators were Lieuts. Demanet, Haguemans, and Liedel. From six to eight machines were expected to arrive in all.

Foreign Notes.

France.

On Saturday last a grand aviation meeting took place at Lorgchamps. A cross-country scratch race was won by M. Chanteloup (biplane class), and M. Legagneux (monoplane class). MM. Prévost and Chemet were second and third. The handicap cross-country race was won by M. Prévost, and MM. Chanteloup and Legagneux were second and third respectively.

On Tuesday, June 2nd, Mr. Oswald Watt, captain in the Australian Army, looped the loop at Buc on a Blériot. He is the first Australian to loop.

Germany.

The altitude contest during the motor-boat and aviation week at Lake Constance was won by Hirth's Albatros biplane. He rose to 1,000 metres in 9 mins. 5 secs., winning 2,500 marks and the prize of the City of Lindau; Truckenbrodt (Friedrichshafen biplane) was second in 9 mins. 35 secs.

The Eastern Provinces Flight begins on June 14th and ends on the 20th; twenty civilians and sixteen military pilots have entered for the contest. All the military machines have 100-h.p. Mercedes motors.

On May 30th the three-cornered flight Berlin-Leipzig-Dresden commenced at Johannisthal, 35 of the 40 entrants starting. Thirty-two landed at Leipzig after 5 p.m., and pursued their way to Dresden, where 27 arrived by 9 p.m. Erich Schmidt (Sachsen biplane) had a remarkable adventure near Meissen. His carburettor caught fire at 700 metres, forcing him to come down very steeply. In so doing his machine turned several somersaults, righting itself in time to land, albeit somewhat abruptly.

On May 31st exhibitions were given at Dresden, and next day 35 machines left for Johannisthal. Stiploschek came to grief soon after the start and crumpled up his Jeannin-Dove. Stiefvatter, on Prince Siegismund's monoplane, had to land near Golsen, and Kuehne, Ballod, Hanuschke and A. Schmidt all landed at different places on the way. Only two of the biplanes failed to reach Johannisthal. Twenty-six pilots landed at Johannisthal in rapid succession, with Langer at their head, and were speedily under way once more for Leipzig, where Bruno Langer's Albatros biplane arrived first. On June 2nd demonstration flights were witnessed at Leipzig, and on June 3rd the men set off for Dresden and Johannisthal.

A feature of the Johannisthal starts and finishes was the beautiful flying accomplished by Fokker, who by far surpassed Pégoud in elegance and variety. The Prussian War Minister was an interested spectator and congratulated the Dutchman.

All the 27 aviators who left Leipzig on June 3rd for Dresden arrived in good time, and only two dropped out on the following stretch to Berlin, in spite of strong winds. Schueler (D.F.W.

WHY TAKE NEEDLESS RISKS ?

EXTRACT FROM REPORT OF THE ROYAL AERO CLUB.
MAY 12, 1914.

Recommendation.—In view of the numerous instances which have come before the Committee in which the use of a safety belt might conceivably have either prevented the accident or mitigated the results, the Committee strongly recommends that all aircraft be fitted for and with some form of quick-release safety belt in order that the pilot may avail himself of this safeguard should he wish to do so. In making this recommendation the Committee is fully alive to the objections that have been raised to the use of the safety belt.

THE 'AVRO' SAFETY BELT

is built on the most scientific lines by practical men who know the requirements of aviation, and each belt is thoroughly tested.

IT IS THE STRONGEST.
IT HAS THE QUICKEST RELEASE,
42/-.

:: Only one quality—the best. ::
STOP TAKING RISKS TO-DAY.

Write for belt, enclosing cash as above to—

A. V. ROE & CO., LTD.,
CLIFTON STREET, MILES PLATTING, MANCHESTER.

Telegrams :
"Triplane, Manchester."

Telephone :
337 Failsforth.

THE BRITISH CAUDRON COMPANY, LTD.

(Late the W. H. EWEN AVIATION Co., Ltd.)

British built **CAUDRON** monoplanes, biplanes, hydro-aeroplanes (combined wheels and floats.)

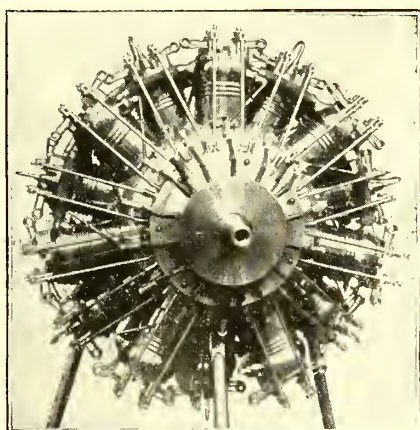
The Flying School, which is one of the most successful in this or any country, will be carried on as usual at The London Aerodrome, Hendon.

THE WORLD'S DURATION RECORD was raised to 16 hours, 28min., 56 secs. by **M. Poulet** on a **CAUDRON Biplane** on April 26.

Telephone : 50 Kingsbury.

SALMSON AERO-ENGINES

SYSTEM CANTON-UNNÉ.



Phone No. :
7 Stroud.

Tele. Address:
Humpidge.
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

Who are the sole concessionaires for these engines for the British Empire.

London Office:—87, Victoria Street, S.W.

'Phone No. : 7026 Victoria. Tele. Address: "Aeroflight Vic London."

"PERRY-BEADLE

BRITISH BUILT

FLYING BOATS

AND

AEROPLANES.

Watch our 45 h.p. Tractor Biplane now at Brooklands; the ideal machine for the private owner. Speed, 65 miles per :: :: hour. Price, £450. :: ::
Every class of Aeronautical constructional work carried out. Send us your enquiries for work to be executed to your own ideas.

Offices and Works:

GOULD ROAD, TWICKENHAM.
ENGLAND.

Telephone—RICHMOND 1109.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

biplane) was the fastest, with a total of 1 hr. 49 mins. for the complete distance of 220 kms. Langer (100-h.p. Albatros biplane) was second in Berlin, although Janisch (L.V.G. monoplane) was faster, 10 secs. behind Schueler.

Janisch lost a wheel off his chassis in starting at Dresden, and in spite of signals in Berlin, did not become aware of his loss until his machine threw him out, happily without any injury. Linnekogel, too, turned a somersault after landing, as the wind tilted up his Rumpler whilst he was seated in it, talking to his friends. Apart from damage to the propeller, no mischief was done.

On June 4th an aerial parade took place at Johannisthal, followed by exhibitions.—B.

During the month of April 151 pilots made 4,588 flights, totalling 592 hours, at Johannisthal.

Italy.

The death of Philip Cevasco on 2nd inst. may, I think, be considered the hardest blow which could imaginably have been dealt to aviation in this country, and fitly caused a striking outburst of feeling among all classes and kinds of people.

The actual cause of death was drowning, that which led up to it being motor obstinacy. Had he had a clutch to make use of or a lifebelt to wear, Cevasco would still have been with us. He had been training for the height record on one of the usual and much used Gabardini waterplanes over Lake Maggiore, when on straightening out after a long plane down the rotary engine refused to start up. Probably misled by the transparency of the water, he appeared to think he had room to dive again steeply, which was not the case, and struck the water with great force, annihilating the floats. The machine, largely built of metal, sank almost at once, and not being a swimmer, the pilot could not keep afloat till help came. This was the first time that his mechanics had allowed him to go up without a cork jacket—a thing which he greatly disliked wearing and always tried to leave behind.

Anent this, Dr. Gobbi writes me as to his patent life-saving belt—in which any substance generating gas when damped, e.g., carbide, is made use of to obtain buoyancy. The device is something like an air-tube, is not inconvenient to wear, and uses capillary attraction to ensure the entrance of sufficient moisture in it to generate the gas should the wearer be unconscious, though this can be effected at any time by means of a valve. The consequent pressure set up by the gas seals up the water-ducts automatically, and a release-valve comes into action when the limit of this pressure is reached. Head support is arranged for.

Pordenone is not to come under the hammer nor under the plough or sickle, unless air-screws be included in the latter category. Again it has returned to aviation.—T. S. HARVEY.

Norway.

Capt. Sem Jacobsen, the well-known army flying-officer, who has done much aviation together with Roald Amundsen, started the other week from Paris in the latter's newly-bought Henri Farman biplane; his intention was to fly to Christiania, but fog stopped him at Ans, in Belgium, and hence he was called back by the military authorities.

After his looping the loop demonstrations in the Norwegian cities, Chanteloup had to hurry back to Paris to fulfil some engagements there; he had an extra ship to Denmark and special train and a racing car here, but yet he failed to catch the Paris train at Hambourg.—H1.

Sweden.

At the Baltic Exhibition in Malmö a big Baltic Circuit Flight—Malmö, St Petersburg, Berlin, Copenhagen—has been decided upon, date unfixed.

During July and August Dr. Thulin will arrange regularly passenger-trips between Malmö and Copenhagen.—H1.

Denmark.

The manœuvres of Lieut. Hoeck on his Leveque flying-boat, altered at Copenhagen, have been very successful; all in all, he has covered 1,500 kms. (800 miles) without the slightest accident, the longest flight being of 1 hr. 40 mins., and the greatest height 1,200 metres. On most of his flights Lieut. Hoeck has been accompanied by Prince Axel, who is a certificated aviator himself.—H1.

Australia.

According to the Australian Press, Signor Edmondo Bianchi arrived at Fremantle on May 5th, en route for Sydney, where he awaited from France five Blériot machines of varying powers. Signor Bianchi apparently intends to give exhibition flights at Sydney, Melbourne, and Adelaide.

M. Guillaux, after having given successful exhibitions of flying and looping at Sydney, was to proceed to Melbourne with similar intent.

U.S.A.

The late Professor Langley's famous old aeroplane flew on May 28th for the first time in its history. Piloted by Mr. Glenn H. Curtiss, driven by the power of the first gasoline engine ever used in an aeroplane, it not only rose from the water with the weight Dr. Langley designed it to carry, but lifted as well an overload of 340 pounds. This extra weight was in the form of pontoons and other fittings attached to the machine to facilitate launching it from the water. In previous trials, eleven years ago, the Langley "Aerodrome" was launched from a catapult on top of a house-boat, and in both cases the big aeroplane was wrecked through the failure of this launching apparatus.

"Langley's Folly," as many flippantly referred to the great experiment, was the first man-carrying aeroplane in the world to be equipped with an internal combustion engine; its ability to fly has been a disputed question for the past decade. For years the practicality of the design has been admitted by aeronautical engineers, but this flight settles the question.

Among those who witnessed the test were Dr. Charles D. Walcott, Secretary of the Smithsonian Institution, and Dr. A. F. Zahm, Recorder of the Langley Aerodynamical Laboratory. There were also present a number of well-known aviators. Actual flight was not contemplated for the morning's test, which was to determine if the balance of the machine had been adversely affected by the added weight and head resistance of the pontoons and other fittings. Mr. Curtiss was running at moderate speed on the water when the machine quietly lifted into the air and sailed steadily along for some distance.

Contrary to a common report, this was the original Langley machine from the museum of the Smithsonian Institution, some broken ribs had been replaced and the wings resurfaced, but the original motor and propellers were used, all of the original framework, and most of the original wiring.

The machine was built in 1903, chiefly of steel. The engine was the one originally built for the machine. It was constructed by Mr. Charles Manly in the shops of the Smithsonian Institute. It has five cylinders, developing about 52 b.h.p. and weighs with radiators, batteries, and twenty pounds of water only 207 pounds, or less than four pounds per brake horse power. The "aerodrome," as Langley called his machine, weighed 850 lbs., with pilot, and has 1,040 sq. ft. surface.

A mistaken idea prevails among those but slightly acquainted with Dr. Langley's work, that he was familiar with no type but the tandem monoplane, or "Langley type." As a fact Dr. Langley studied and experimented with every type known to the world to-day. He built rigid wing biplanes, flexible wing biplanes, tandem biplanes; machines with single propellers, machines with twin propellers; machines with the pendulum type of automatic stabiliser. A man of high scientific attainments, who first carefully reviewed the entire history of the prior art and then devoted nearly twenty years of time and practically unlimited money in painstaking research work, it is almost impossible that any layman could imagine any combination of plane surfaces and motive power which he had not investigated or actually experimented with. Much that he accomplished would have been known to the world, and its value generally recognised, had the memoirs which he compiled in 1897 been published at that time. Unfortunately they were not made generally available until 1911, when they were published by the Smithsonian Institution. One thing seems positive—the demonstration of the practicality of the old Langley "Aerodrome" will result in opening up new lines of aviation research, and may easily show that the last five years of commercial exploitation have followed the lines of least resistance rather than those of most lasting benefit.

TO GUSTAV HAMEL.

*(Requiem aeternam dona ei, Domine, et lux perpetua
luceat ei.)*

Child of the wind and the sea,
On the sea-wind's wings you came;
You made the uncharted skies your own,
And the clouds untamed and the heights unknown
Were yours, to know and tame.

Swift as the wind of the sea,
With a sea-bird's flight you sped;
But the doom that waits where the sea-wind cries
Was written deep in your sea-deep eyes,
And we, who watched you, read.

None but the wind and the sea
Know where your grave may be—
To wider life, or to dreamless rest,
You went by the swiftest way, and best—
One with the wind and the sea!

M. L. E.

Aeroplanes in War.

On Wednesday of last week, Major M. F. Brancker, of the Department of Military Aeronautics, gave an interesting lecture on the use of aeroplanes on active service at the University of London (South Kensington Branch).

Major Brancker said that partly for lack of time, and partly because more was at present known about them, he intended to confine his remarks to land machines. Although some experience had been obtained on active service in Morocco and in the Balkans, we were still very much in the dark, for aeroplanes were used in Morocco against people who could not retaliate, and the organisation of the Balkan war was so bad that no reliance could be put upon their results.

The problem of reconnaissance had become more and more difficult, because the introduction of smokeless powder and longer and longer ranges had made the fog of war thicker and thicker. The operations in Manchuria were rendered extraordinarily difficult by the absolute ignorance almost all the time of both Russians and Japanese as to what their opponents were doing. The same conditions obtained in the Boer War.

At the critical moment aviation had come to the rescue. Under suitable conditions a trained observer could see the disposition of troops with the greatest ease, and could do as much work as a whole body of cavalry. Very satisfactory results had been achieved last year during the Army exercises in Bucks and Northants. On September 24th the G.O.C. White force sent out four aeroplanes, which in the course of two hours had brought in the dispositions of the enemy almost perfectly accurately. As to the other side of the picture, of course, suitable conditions did not always exist, and there were always the enemy's subterfuges to master. Aerial reconnaissance was quite a different thing from flying across country on a compass bearing. It is necessary for the observer to be able to place his finger on the map at any moment and say with confidence, "We are here." These difficulties are naturally very much enhanced in single seated machines, where, of course, the pilot must watch for everything himself, and after perhaps a long, exciting flight, must be capable of sitting down and rapidly writing out an intelligible report.

The subterfuges of those on the ground, such as hiding troops in houses, and under hedges, making country carts look like field guns, and making field guns look like country carts, and so forth, considerably discounted the value of aerial scouts. The general resemblance of the uniforms of rival troops made it difficult to distinguish friend from foe. Climatic conditions had to be seriously reckoned with, the least of which was wind. Rain, heat and fog were much more disturbing, although the design of modern aeroplanes made rain more bearable. At present darkness is also a considerable hindrance, but the German aviators were already cultivating night flying, and

as soon as we had a really dependable engine, doubtless we should soon follow.

For the purposes of wind fighting high speed was desirable, but the disadvantage of existing scout machines was the impossibility of getting into small fields where one had to dive in over trees. The production of air brakes and land brakes needed attention. The lecturer referred to M. Garaix and the Schmitt biplane which had showed a speed range of 75-40 with six on board.

The question of maintenance was one which was often overlooked, and it would be difficult to have more than say 30 machines out of 100 flying at a time under war conditions. One could fly around an aerodrome almost indefinitely without even minor breakages, but it was a different matter to fly continually across country, when landings in bad fields were sure to bring a machine to grief after a very short time. The only remedy for this was a very high standard of efficiency in the personnel and the restriction, as far as practicable, of the number of types.

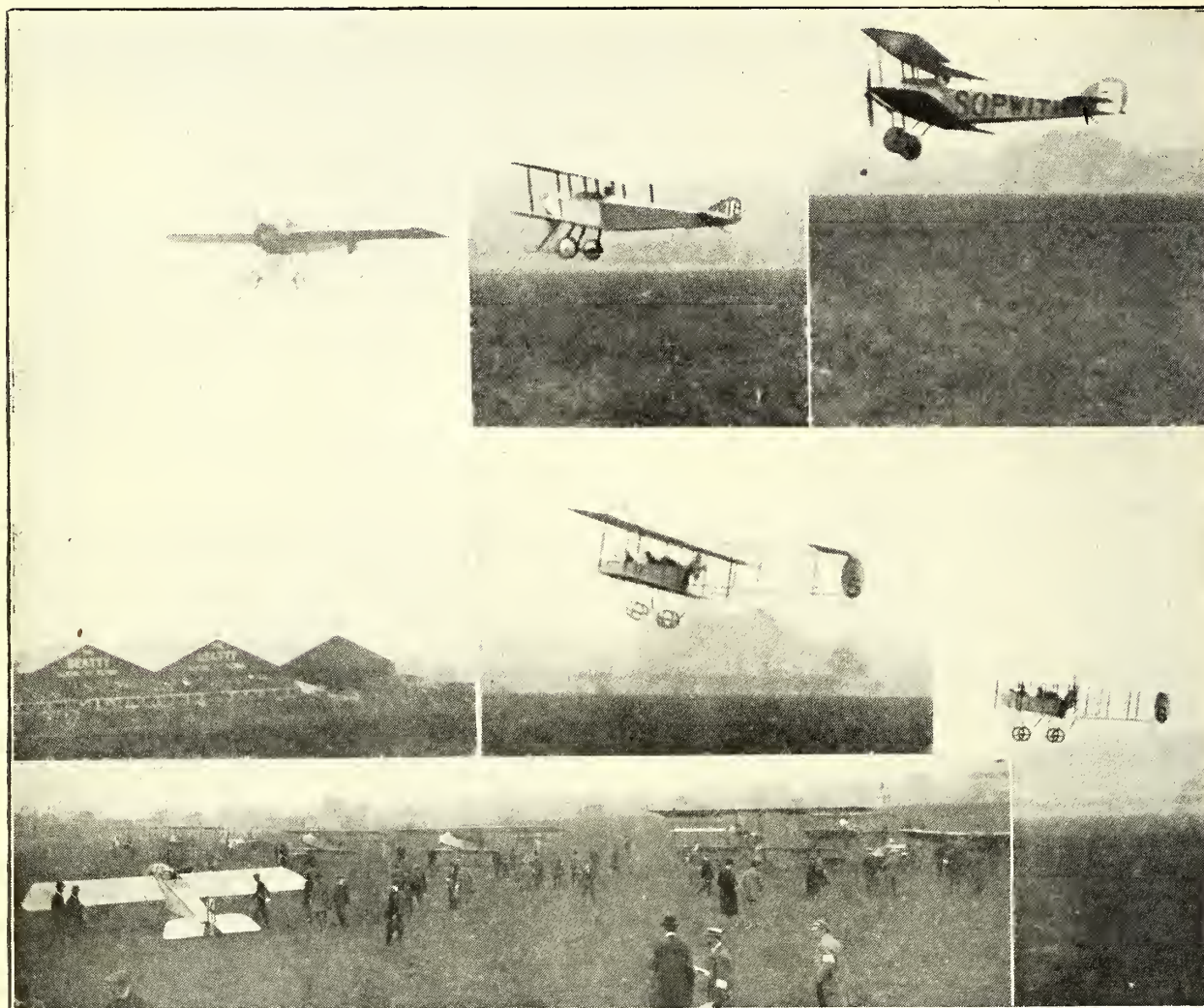
Engines were difficult to keep running. A Gnome or a Renault could be made to go for 50 hours, but then it had to be thoroughly overhauled. A higher factor of safety all round was needed. The introduction of folding wing machines would facilitate the proper protection of aeroplanes under cover enormously.

At present an aeroplane was fairly safe at 3,000 feet from rifle fire, and at 4,000 feet from gun fire. An aeroplane was very difficult to hit from the ground, unless it was immediately overhead, when, of course, all the projectiles would rain down upon the aggressors' heads. Aeroplanes were so very difficult to recognise, that the lecturer did not think any very serious effort would be made to hit them from the ground. It was possible to cover the vulnerable points of an aeroplane such as the cockpit and the engine with light armour which would protect it from rifle fire at 1,500 feet, and also high speed meant safety.

As to fighting in the air, the fighting aeroplane would make reconnaissance difficult, but the scout would have the advantage of its speed and climbing power, and the addition of a rifle to its equipment would make it quite an unpleasant opponent to the heavy gun-carrying machine. In attacking a dirigible the aeroplane would not have things all its own way, as considerable resistance would be made from the nacelles and from the gun platform on top, and the dirigible would probably score in climbing speed, owing to the necessity for the aeroplane to climb in spirals. The concerted attack of several aeroplanes would probably be necessary to destroy a dirigible, and the final argument was to allow some hero to dive through the dirigible in a scout. This doctrine is already being preached in France. A fight between two aeroplanes would also be very interesting, as each aviator would be playing for position all the time. It would be difficult for the slow moving gun-carrier to out-manceuvre the fast scout, but a gun-carrier, stationed over a definite area, could make it very difficult for scouts to approach for reconnoitring purposes.

The lecturer thought it would be quite possible for aeroplanes carrying bombs to do considerable damage to aircraft, etc., on the ground by swooping down suddenly and launching bombs from low altitudes; advantage could be taken of ground contours in this work. The attack of troops from above was still very far off, as the amount of damage done would not justify the risk to the aeroplane. Although the use of the aeroplane would not revolutionise warfare, it would undoubtedly put the chance of war very largely in the hands of the side which has the best air fleet, and for this reason it is necessary for us to have a very efficient air service. It is possible that the moral effect of the aeroplane on war will be even more potent than the physical effect.

As to comparative progress in the three countries, France obtained a very big lead at first, which she lost by the frantic demand for numbers of machines with no relation to quality. Germany was very slow to start, but by methodical work and the loss of many lives her air service was now better organised than that of any other country. Our own Service is good in quality, but not in quantity, which the lecturer ascribed to the smallness of our Army. Taken as a whole, he thought aviation would hasten the course of war, and get it over quickly.

The Aerial Derby.

Starting the Aerial Derby in a mist.—On the left, Mr. Brock, the winner. Above, Mr. Pixton (18), Mr. Barnwell (21), Mr. Carr (5), and Mr. Verrier (6). Below a general view of the machines being marshalled for the start.

Certainly Hendon's luck in the weather seems out this year, for the Aerial Derby was within an ace of being postponed a second time on Saturday. However, some of the pilots expressed their willingness to start and chance it, and the rest followed their example. At Hendon itself the air cleared considerably half an hour before the start, but it was obvious that by the time the low lying clouds had crossed London they would acquire sufficient dirt to attain a pea-soup consistency when they passed over the southern legs of the course.

However, eleven brave men set off in the following order, their machines bearing the numbers given:—1, Bjorkland (Radley and Moorhouse—Handley Page Blériot type monoplane, 50-h.p. Gnome); 2, Birchenough (Maurice Farman, 70-h.p. Renault); 5, Carr (Military Henri Farman, 80-h.p. Le Rhone); 6, Verrier (H. Farman, 80-h.p. Gnome); 8, Strange (tandem Blériot, 80-h.p. Gnome); 9, Alcock (M. Farman, 100-h.p. Sunbeam); 12, Brock (Grahame-White Morane, 80-h.p. Gnome); 13, Noel (G.-W. Morane, 80-h.p. Gnome); 14, Lord Carbery (Morane, 80-h.p. Le Rhone); 18, Pixton (Sopwith Scout, 80-h.p. Gnome); 21, Barnwell (Sopwith Scout, 100-h.p. monosoupape Gnome).

The competitors all went off at intervals of a minute, and

were practically together at the first turning point—Kempton Park. Here, however, divergences began to occur, Mr. Alcock going straight back to Brooklands. At Epsom Mr. Strange apparently missed his way, and eventually landed at Hayes, near Tunbridge Wells, flying back over Streatham and the South London suburbs the same evening. Before reaching West Thurrock, Mr. Pixton turned back, and landed at Addington, not far from Croydon. Mr. Bjorkland landed at Epsom. The rest of the pilots seem to have lost their way and found it again at intervals round the course, except Mr. Brock, who must have flown an extraordinary good course.

The first man home was Mr. Noel, who reported that Mr. Pixton passed him at Kempton Park, and that he saw him turn back at Dartford. He also reported passing Mr. Brock at Epping. However, No. 13 was evidently unlucky, for he was disqualified, not having been observed either at West Thurrock or Hertford. He was, however, seen to turn south at Broxbourne, some 5 miles south of Hertford. Apparently he mistook the cement works chimneys at Purfleet for the West Thurrock chimneys, for the engines of two machines were heard up-river by the observers at West Thurrock, one of them undoubtedly being Lord Carbery's and the other probably Mr. Noel's. The pilot reported very thick weather

Fit Palmer Cord Tyres

You then have tyres that grip and never slip; that give buoyancy and added speed, lessen driving strains, absorb road shocks, reduce petrol consumption, and keep you free from annoying tyre troubles on the road.

*Whatever your mileage or tonnage,
you can always depend on—*

PALMER
(ORIGINATORS OF THE THREE RIB TREAD)
CORD TYRE

THE PALMER TYRE, LIMITED,
119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

Phones: 1214 Gerrard (Four lines). 'Grams: "Tyreord, Westcott, London."

PARIS: 152, Avenue de Malakoff. —AMSTERDAM: Stadhouder-
skade 91. —GLASGOW: 6, Royal Exchange Sq. —BIRMINGHAM:
Belmont Row. —COVENTRY: St. Mary's Street. —NOTTING-
HAM: Greyfriar Gate. —LEEDS: 54, New Briggate. —
MANCHESTER: 263, Deansgate.

TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane is one of PIGGOTT'S PATENT AEROPLANE TENTS.

Pattern No. 3, suitable for a Bleriot Monoplane. Price in water-proof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.
Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.



THE
GREAT

AERIAL DERBY

THE SPEED CONTEST AND
THE HANDICAP RACE

WINNERS USED:

'CASTROL'

REGD.

MOTOR OIL

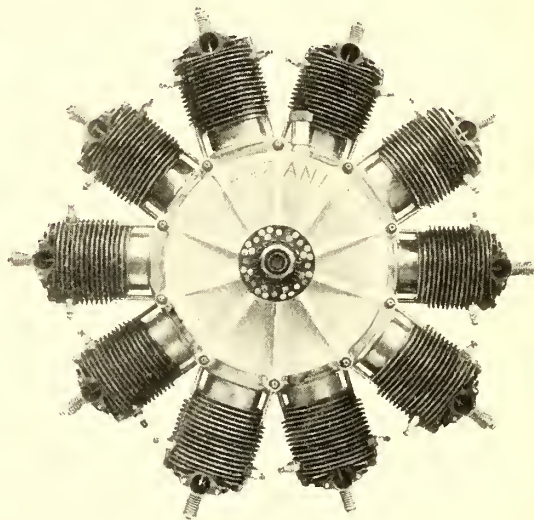
N.B.—THIS IS THE THIRD
SUCCESSIVE YEAR THAT
THE WINNING PILOT HAS
USED CASTROL.

"For the Highway and the Skyway."

C. C. WAKEFIELD & CO.,
WAKEFIELD HOUSE,
CHEAPSIDE, LONDON, E.C.

C.D.C.

ANZANI



100 H.P. 10-CYLINDER.

THE BRITISH ANZANI ENGINE CO. LTD.

30 Regent Street, Piccadilly Circus, London, S.W.

Phone 280 Gerrard

Wire "Santochimo, London."

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

all the time, and said that he had been shaving trees all the way round the course. Undoubtedly this was his undoing, because he flew in the fog, whereas at a higher altitude the air was clear and the machines could be seen by the observers at West Thurrock well over 1,000 ft. In fact, the numbers on the machines piloted by Messrs. Carr and Verrier could be read with the naked eye at something like that altitude. After turning at some place which he believed to be Hertford, Mr. Noel flew south till he recognised Barnet, and then came into the aerodrome from the wrong direction.

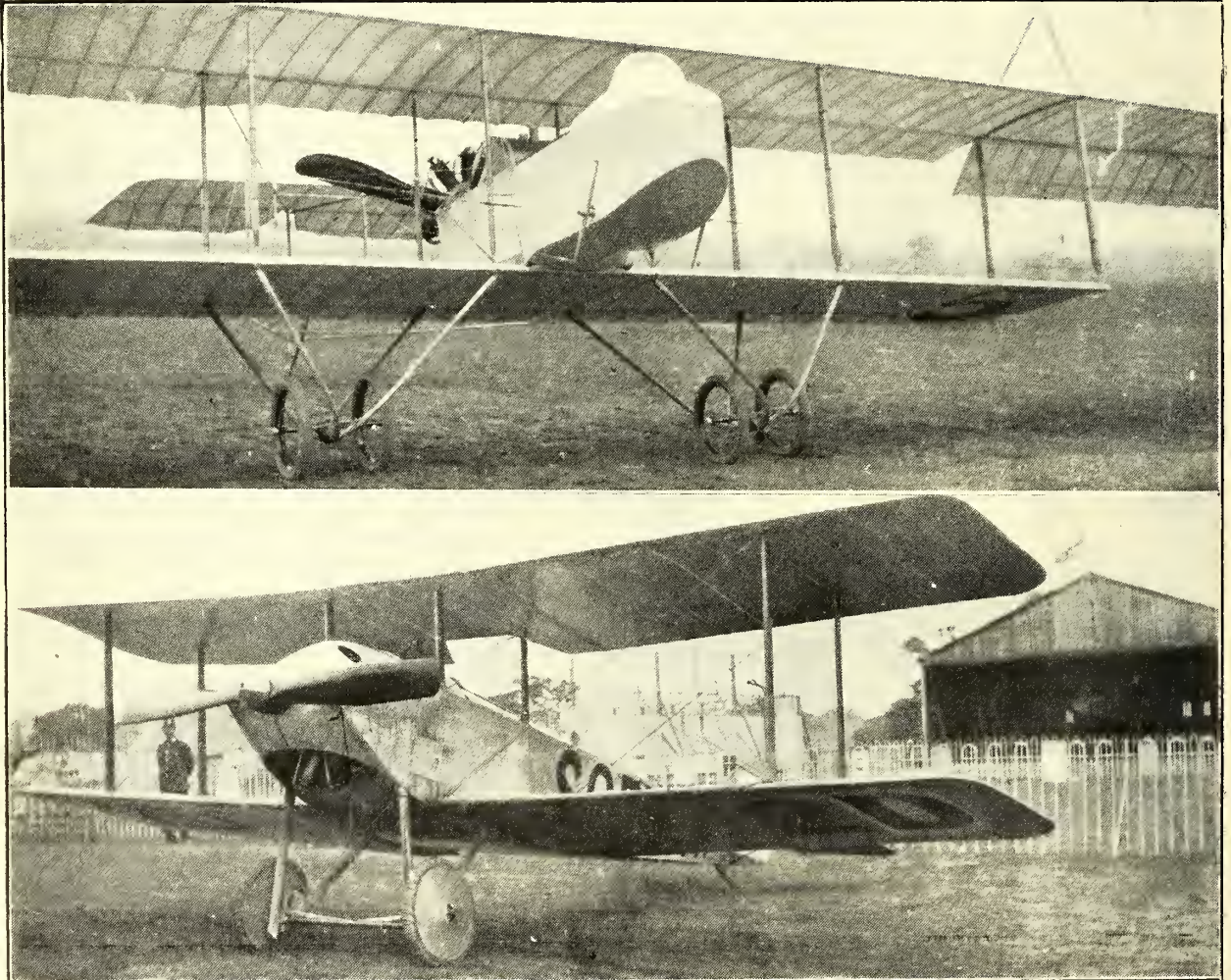
Some few minutes after he arrived, Mr. Brock hove in sight, obviously on the correct course. He said that he flew most of the way at a thousand feet, but came down to about 300 feet near Dartford, coming down lower still to the turning point at West Thurrock. He said that the air was thickest from Epsom to Dartford. Both Sopwiths passed him at Epsom, and he also saw a Henri Farman, but none of the other machines appeared.

Mr. Carr, who carried Mr. Barrs as passenger, said that at just over a thousand feet he was in the clouds, and that at Croydon he could not see 100 yards in any direction. At West Thurrock he saw Mr. Barnwell, who had passed him long before reaching Epsom. After passing Hertford he got to Ware before he turned south.

M. Verrier, who was the only other pilot to finish the course, carried a Press photographer as passenger, and had quite an uneventful journey, apparently making a good course

except at the turning points, where he performed evolutions apparently with the idea of making sure of his course. At West Thurrock, in fact, he came in from quite the wrong direction, arriving from the N.E. instead of the S.W.

Mr. Barnwell, who was apparently ahead of everybody in the neighbourhood of Epsom, was lost in the fog, and struck the river somewhere about Erith, after which he chased up and down the middle of the river at about 100 feet, searching for the cement works, and incidentally giving an excellent show to sundry barges and longshoremen. Finally recognising Purfleet, he flew on to West Thurrock, and did a turn round the chimneys as though he were pylon-scraping at Hendon. Thereafter he again missed his way, chiefly because his compass was shaken about by the vibration of the engine to nearly 25 per cent, in either direction, and failed to see Epping at all. He recollected that there was a square church tower at Hertford, and proceeded to fly round the county of Essex, doing circuits round every square tower he found on the principle that one must be the right place. Unfortunately there are square church towers at every place in Essex above the size of what the French call an "agglomeration", and so he did a number of circuits without being sure that any one of them was round the right tower. Finally he went off on a south-westerly course, hoping for the best, and found himself somewhere on the Thames without seeing Hendon at all. From the narrowness of the river he judged he must be a good deal to the west, so he flew eastwards, and at last recognised the reservoirs at Staines, finally landing at



Above, the new chassis of the Henri Farman (80 Le Rhone) flown by Mr. Carr in the Aerial Derby. Below the Sopwith Scout (100 monosoupape Gnome) flown by Mr. Barnwell.

Brooklands with about an inch of petrol in his tank, having been in the air an hour and 50 minutes, and therefore having covered something very like 200 miles, instead of the regulation 95.

Lord Carbery managed to keep the course as far as West Thurrock, where he passed too far to the west, and then came down to ask his way. Realising that he was out of the race, he flew back without troubling about Epping, and came down again at Hampstead Heath to make enquiries. Finally he appeared from the south of the aerodrome instead of the north.

Mr. Birchenough, who had turned back at Epsom, landed in Richmond Park, and returned early next morning over Hammersmith, and that I think disposes of the lot.

Mr. Brock is to be highly congratulated on his excellent performance, as his time shows that he can have lost very little ground on the way, actually he was within 6 seconds of his theoretical time. Evidently it was his day out, and he thoroughly deserved it. The Grahame-White Co. are also to be congratulated on their share of the winnings, as they take a proportion of both the 1st and 2nd prizes in the Shell handicap, as well as the Aerial Derby prize. Everyone is very sorry for M. Noel, for whom a win would have been very

popular, but one fears there is no doubt about his turning short at two points.

The official order of finishing, and the times, were as follows:—(1) Mr. W. L. Brock, 1 hr. 18 mins. 54 secs., which gives a speed of just under 72 miles per hour, as against Mr. Hamel's speed last year of 76 miles per hour on a very much faster machine. He received a handicap of 20 mins. 24 secs. (2) Mr. R. Carr, time 1 hr. 46 mins., with a handicap of 33 mins. 34 secs. (3) M. Verrier, time 1 hr. 49 mins., with a handicap of 36 mins. 51 secs.

Before and after the race many of the competitors made test flights on their machines. Mr. Claude Grahame-White took passengers up on the char-à-bancs and on a box-kite; Mr. J. L. Hall flew excellently on his 50-h.p. Avro, and Mr. Baumann flew on the Beatty-Wright 50-h.p. Gnome. Late in the evening the Statax-Caudron was brought out and made a very short and low hop. After the race Lord Carbery gave a demonstration of looping, with and without a passenger. Mr. Mahl flew the 80 Sopwith with a passenger from and to Brooklands. Mr. Raynham was a spectator, having abolished the Avro Scout the previous evening. Mr. Sippe (Bristol Scout) started from Brooklands, but turned back owing to thick weather, and Mr. Waterfall (Martinsyde) went up to look at the weather, but did not leave Brooklands.

An Acquisition to Aviation.

The Beatty School of Aviation is to be congratulated on its latest pupil. H.S.H. Princess Ludwig of Lowenstein-Wertheim, who flew the Channel recently as passenger with Mr. Rowland Ding on the Handley Page inherently stable biplane, was so charmed with her experience that she decided to learn to fly herself, and she has, in consequence, joined the Beatty School, which is, of course, allied to the Handley Page firm. Princess Ludwig, who before her marriage was Lady Anne Savile, and is a sister of the present Earl of Mexborough, is thoroughly British, despite her title, and, coming as she does of one of our old sporting families, one may expect her to be an apt pupil. It is eminently satisfactory to find the best people taking this practical interest in flying, and the latest recruit's title is somewhat to be regretted, for it will give the lay Press such opportunities for drivelling about "The Flying Princess," which, of course, from their point of view, is even a finer "story," as they call it, than "The Flying Mother." The real point for congratulation is that a sportswoman of the genuine British aristocracy has decided to fly. One wishes the plucky lady success in her new sport.

The London-Manchester Race.

The race from Hendon to Manchester and back will take place on Saturday, June 20th, and the competitors will start from the Hendon Aerodrome in the order of their handicap times at intervals between 8 a.m. and 11.30 a.m., the winners being expected to arrive back at Hendon shortly after 5 p.m. the same day. The total distance is approximately 325 miles, and the pilots must make a stop of half an hour at Birmingham both on the outward and return journeys. They will also make a stop of one hour at Manchester.

The course of the race runs near the most populous districts in England, and the public will have an opportunity of wit-

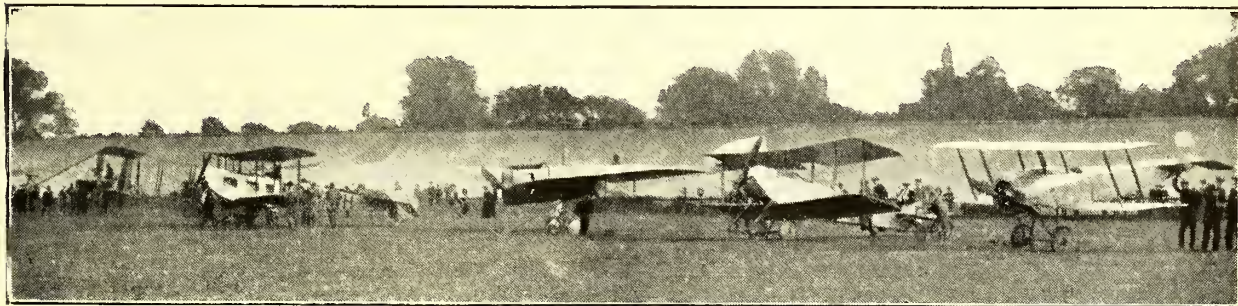
nessing one of the finest contests in the history of aviation, and the contrast with the famous London-Manchester race of four years ago will enable them to realise the significant progress that has been made. Over twenty aeroplanes are expected to take part, including many of the Aerial Derby pilots, and a number of crack Continental aviators.

The pilot doing the fastest time will receive the "Daily Mail" Gold Trophy and 400 sovs. The first prize for the fastest handicap time is Pratt's Trophy and 250 sovs., and the second prize 100 sovs. The whole of the cash prizes, amounting to £750, have been presented by the Anglo-American Oil Co., Ltd., the distributors of Pratt's Motor Spirit, in commemoration of the Anglo-American Peace Centenary.

The public will be admitted to the enclosures that are being erected at the Castle Bromwich Playing Fields, Birmingham, where the competitors may be expected to be arriving and departing between the hours of 9.30 a.m. and 4.30 p.m., and to the enclosures at Trafford Park, Manchester, where the competitors are expected to be arriving and departing between the hours of 11 a.m. and 3.30 p.m.

Looping displays and passenger flights will be given at the Hendon Aerodrome during the day, and a twelve-mile speed contest for the Hendon Cup will take place round the aerodrome course at 3.30 p.m., in which the Hendon aviators, who are not taking part in the London-Manchester race will compete.

Next Saturday, June 13th, a race will be flown for the Manio Cup, presented in his memory by the widow of Signor Manio, the Italian aviator who was killed last year in Portugal. Signor Manio will be remembered as flying from Paris to London and alighting on a house at Palmer's Green. The Signora Manio retains her keen interest in flying and is a frequent visitor to Hendon.



The start of the Whitsun Handicap at Brooklands. Left to right, the Sunbeam-Farman, Sopwith, Martinsyde, Sopwith Scout, and Bristol Scout.

The Calshot Accident.

It is with very great regret that one records the deaths on Thursday last, June 4th, of Lieut. T. S. Creswell, R.M.L.I., and his passenger, Commander Arthur Rice, R.N., in an accident to the Wight seaplane officially numbered 128, off Calshot.

Mr. Creswell, who joined the Royal Marines in 1905, took his aviator's certificate at Eastchurch early last year, and was appointed to the Yarmouth Air Station. During the Naval Manœuvres in July he did much good work on a shore-going Maurice Farman, scouting far along the coast of the hostile territory and bringing back valuable reports. I saw him make several flights at that time and was much impressed by his skill, steadiness and excellent judgment of speed and distance. Later he was transferred to Calshot, where until lately he had not much chance of flying owing to scarcity of machines, but I gather that he gave everyone there similar confidence in his reliability as a pilot.

Being a Marine he was very much a soldier in manner, but he loved the sea, and when he was transferred to Calshot he made the journey round from Yarmouth in quite bad weather in a tiny cutter which he owned, and on which he lived for some time after his arrival. Most of the trip was made single-handed, no mean feat under the circumstances. Having joined the Naval Air Service thus early, it seemed that he had every prospect of a very distinguished career in the King's service, for besides possessing ability he had a singularly charming personality. In him the Navy has lost a good officer, and one knows that he leaves many friends who will feel his loss deeply.

Commander Rice, R.N., was an officer on the staff of the War College at Portsmouth, and had visited Calshot to acquire experience of the value of observation from aeroplanes. He joined the Navy in 1898 and had had a distinguished career. In him also the Service has sustained a great loss.

To the Service, and to the relatives of both the deceased officers, one ventures to offer the sympathy and regrets of all those concerned with aviation in the country.

The Accident.

The cause of the accident is more than usually obscure. From the evidence of Lieut. Spenser Grey, R.N., and Messrs. Gordon Bell and H. W. Chilcott, who were in a motor boat only a mile or so from where the machine fell, it is clear that the machine dived vertically into the water, and that before it struck the water one or both of the wings broke, though reports of the inquest make it appear that Mr. Bell and Mr. Chilcott disagreed as to which wing broke. They agree, however, that Commander Rice either dived or fell out of the machine some thirty feet before she struck. They deny having heard any explosion.

As to the breaking up of the wing, in the case of so heavy a machine, of something like 3,500 lbs., the speed attained in a vertical dive might well be so great that the pressure on the wings would, after a certain point, exceed the factor of safety, though it seems scarcely likely in a dive of 200 feet or so. It seems more than likely that the breaking of the wing was the effect of the prime cause of the accident rather than being itself the cause. It is well to remember, however, that if a wing began to break at its outer end, as Mr. Bell's evidence stated, the machine would spin round it and fall on the broken wing, and not nose first as the accounts describe. That the wings should break at all suggests that we may be near the limiting span of centrally loaded aeroplanes.

The evidence also shows that Mr. Creswell's clothes were torn at the back and that his back, shoulders and sides were scalded or burnt. His clothes were not burnt, so that it may seem unlikely that there was an explosion. Mr. Creswell's body was found strapped in his seat, but it is just possible that

the nacelle of the machine may have been broken back in striking the water, and that the tearing of the clothing and the scalds may have been caused by the hot radiators bearing on the pilot's body while under water, though it is hard to see how he could have got anywhere near the engine with the huge petrol tank intervening.

There is just a possibility that one of the radiators may have burst or simply have jerked loose and fallen forward onto the pilot, thus making him fall onto his control and so cause the fatal dive. The radiators are situated some way behind the pilot and on each side, but they are of considerable height, so that one cannot altogether ignore this possibility.

It has also been suggested that one of the bottles containing compressed air, which is used for starting the engine, may have burst, in which case the intense cold might have produced the visible effect of a scald, and such a burst might have the effect of stunning the pilot and throwing him forward.

The absence of burns on his clothing by no means does away with the possibility that an explosion occurred, for in big explosions it is common for a man's clothing to be torn off by the air-shock without being burnt, though the man may be. It is said that the wireless was not being used, but it may be well to point out that such an accident is not impossible from the ignition apparatus of the motor.

Some time ago Mr. Gordon England, who was flying this same machine, remarked that when the wireless was working he could distinctly smell the ozone formed by the spark gap. This shows that in this machine, as in all others of the various types which have high wind screens in front of long nacelles there is a distinct forward draught inside the nacelle. In the case of a petrol leak owing either to a defective tank or a joint shaking loose the petrol vapour would be sucked along the nacelle and would almost certainly ignite directly the wireless was operated, or it might catch from the exhaust of the motor. This, of course, is another powerful argument against using petrol at all, and we shall never really be free from danger of fire or explosion till the heavy oil engine is evolved. If an explosion occurred it would probably break up the central section of the machine and let the wings back, more or less as described.

There is, of course, also the possibility that Mr. Creswell fainted and fell on to his controls, but this is exceedingly remote and may practically be ignored. There is also the possibility that an elevator wire broke, but in such a case the Wight machines are so nearly inherently stable that the machine would be practically controllable on the engine throttle alone.

Yet another possibility is that a tail-boom broke, which of course would throw the whole of the fore and aft stability arrangements out of operation. In all machines of the propeller behind type the tail booms appear the weakest part of the structure, and the difficulty of bracing them properly with the propeller between makes them even more difficult to arrange safely than it is to make the ordinary type of fuselage safe. It may be noticed on many machines how one or other of the tail-booms vibrates when the engine is running and the machine is stationary, and though frequently not noticeable when the machine is flying, the cause of the vibration must still exist and therefore must be a source of danger. The remedy for this seems to be the use of a machine with a fuselage and twin propellers, even if it is designed with the pilot and observer out in front.

One can only hope that the technical committee appointed by the Admiralty to investigate the accident may discover some adequate reason for it, and will allow the finding to be published.—C. G. G.

The Flying Accident Fund.

In connection with the above fund, which is being organised by the Women's Aerial League to assist the widows or dependents of pilots who are killed or permanently disabled, a *matinée* will be given at the Royal Court Theatre on Friday,

July 3rd, at 2.45 p.m. Five short one-act plays by Major Phillip Trevor will be acted by five members of the Trevor family and two others. Tickets for the performance may be obtained from the Women's Aerial League, 25, Denison House, Vauxhall Bridge Road, S.W.

ACCLES & POLLOCK, LIMITED.

OLD BURY,
BIRMINGHAM.

Send for 25" X 20" Chart of Full-Size Sections,—Post Free

TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.

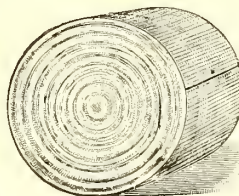
ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR **AEROPLANES.**
ONE QUALITY—THE BEST

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE



TRADE MARK 'TABLOID' BANDAGES
(Pleated Compressed)

Ordinary roller and 'Tabloid' Bandage same length and width—note relative sizes

Ideal for Aviators

Sold by all Chemists

Burroughs Wellcome & Co.
London



BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works: BROOKLANDS AERODROME, WEYBRIDGE, SURREY.

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone: Byfleet 190.

"EMAILLITE"

THE PREMIER DOPE
British Manufactured

"AS TIGHT AS A DRUM."

As adopted by H.M. Government and
all the leading Manufacturers.

The BRITISH EMAILLITE Co., Ltd.
30 Regent Street, Piccadilly, S.W.
Phone, 280 Gerrard. Wire, Santochimo, London



HANGARS.

Any size built and fitted with

PERFECT SLIDING DOORS

obviating all the disadvantages of every present
system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

GARAGES, CLUB HOUSES
and other buildings. Estimates Free.

WIRE-WOVE ROOFING COMPANY,
108, Queen Victoria St., London, E.C.

CELLON

DOPES 9 and 10 Make the FABRIC FIREPROOF

CELLON, LTD., 17, OLD BROAD STREET, E.C. Telegrams: "AJAWB LONDON." Telephone: 5359 London Wall.

The Funniest Book on Aviation.

"Lighter than Air"

OR THE AVIATORS GUYED

Of all Booksellers or direct from "The Aeroplane,"
166, Piccadilly. Post free 1s. 2d.

BOOKS TO READ.

Flying: Some Personal Experiences.

By GUSTAV HAMEL and C. C. TURNER, 12/6.

Animal Flight: A Record of Observations. By DR. E. H. HANKIN. 12/6.

The Mechanics of the Aeroplane.

By DUCHESNE. 7/6.

May be obtained from THE AEROPLANE, 166 Piccadilly, W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

New Nieuport Machines.

The Nieuport Company have just delivered to the French Army two new types of armoured machines which upon trial have given excellent results.

The tests stipulated that the machines had to rise from and afterwards alight in a space 450 feet square, bounded by a hedge 6 feet high. The results were as follows:—

Single-seater Scout.—Useful load, 355 lbs.; speed per hour, 78 miles; height, 1,640 feet (500 metres) in 3 mins. 30 secs., starting from ground after a run of 229 feet, alighting and stopping in 196 feet.

Destroyer with quick-firer.—Useful load, 850 lbs.; speed per hour, 89 miles; height, 1,640 feet (500 metres) in 3 mins. 40 secs., starting from ground after a run of 393 feet and alighting and stopping in 295 feet.

These two machines are fitted, the one with an 80-h.p. Gnome and the other with an 160-h.p. Gnome.

With regard to the new Nieuport hydro-aeroplanes accepted by the French Navy, these are:—(1) Single-seater, 80-h.p. Le Rhone, speed 80 miles an hour, fuel for 6 hours, and (2) two-seater (80-h.p. Le Rhone), speed 71 miles an hour, fuel for 5 hours. These two new machines took part in the Mediterranean manoeuvres, as well as others, with 100-h.p. Gnomses.

With reference to the Nieuport waterplanes, out of the 11 machines taking part in these Mediterranean manoeuvres, the only monoplane admitted was the Nieuport, and four other Nieuports were at Bizerta and one at Toulon, and all these machines rendered very good service.

On May 14th, Commanders Delage (head of the Nieuport Company in Paris), de l'Escaille and Destrein were scouting in mid-ocean for a distance of 130 miles, and their flight was attended with every success. On the 19th, these same officers, together with pilot of reserve Levasseur, made flights lasting for more than two hours in the Mediterranean, and also night flights. All the naval officers were enthusiastic about them.

Since one is speaking about the new Nieuport machines, one would add that this firm is bringing out a new tractor, a "parasol," and that they are again building the celebrated 28-h.p. Nieuport, which is considered to be one of the finest existing machines. This machine has a fuel tank sufficient for 10 hours, and only weighs 320 lbs. Finally, a skimmer of an entirely new type is at present being constructed.

All these brilliant results are due to the enterprise of Commander Delage, the new head of the Company.

Financial Levitation.

As was to be expected, after the booming it received from an easily led lay Press, the Bachelet Levitated Railway, Ltd., has come before the public with a prospectus asking for £100,000 from the people of this country. The subscription list has closed by now, and one wonders how much good British money has been subscribed. To give the promoters credit they do not promise dividends, and the money is obviously intended for experiments only, though Mr. Bachelet hopes to take £20,000 in cash for his patents.

The prospectus is not without unconscious humour, for the chief point made is Mr. Bachelet's statement that the railway can attain a speed which he estimates to be as high as 300 miles per hour for any distance, and that there are no locomotives, no engines, no motors, no wheels, no gearings, and practically no friction than that caused by air resistance. It requires but little knowledge of electricity to realise that the engines needed for the power station which would operate the system would be required to produce considerably more power than ordinary locomotives transporting as many tons load the same distance in the same time, and, incidentally, at anything over about 120 m.p.h. air friction and resistance becomes so enormous that all other forms of friction simply do not matter.

It must be recollected that solid friction is directly proportional to the load, but air resistance increases as the square of the speed, or perhaps even more rapidly, so that what one gains on the swings one more than loses on the roundabouts. It is curious to read that Sir Sam Fay, General Manager of the Great Central Railway, "has kindly made arrangements for the use of an exceedingly valuable piece of land alongside their main line where this full-size track will be erected."

One hopes that the Great Central Railway is to be well paid for this valuable piece of land, as one would have expected that a valueless piece of land would be more easily spared for experimental purposes. One regrets to read that this position is within sight of passenger trains, for if one of Mr. Bachelet's hoped-for 300-m.p.h. projectiles gets out of hand, it may be bad for the passengers.

A budget of super-enthusiastic Press comments was enclosed with the prospectus, affording an edifying example of the misuse of the English language.

A Wanderer Returned.

Another wanderer besides Mr. Hawker has returned to civilisation lately, in the person of Mr. Compton-Paterson. "Pat," as he is called, has been spending a short holiday in Liverpool since his return from the Cape a couple of weeks ago, and is now on a business visit to London.

Mr. Kemp's Recovery.

His many friends will be pleased to hear that Mr. Ronald Kemp is making an excellent recovery from his smash on the Royal Aircraft Factory's propeller biplane F.E.2 at Wittering some four months ago. He is still on crutches, but hopes to discard them in a few days' time. His leg was very badly broken, but his sound constitution and cheerful spirit made a better job of it than he had any reason to expect.

The Week's Work.

Weather Report for Week Ending June 7th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ..	Fine	Fair	Windy	Windy	Fair	Dull	Show'y
Calshot	Fine	Fine	Fine	Fine	Show'y	Dull	Windy
Eastchurch ..	Windy	Fine	Fine	Some Wind	Some Wind	Windy	Show'y
Hendon	Windy	Windy	Windy	Windy	Gale	Puffy	Windy
Waterloo (Liverpool) ...	Windy	Calm	Windy	Gale	Gale	Gale	Stormy

Flying at Brooklands.

On Tuesday morning Mr. Dukinfield Jones was out on the D.F.W. Messrs. Pixton and Mahl went to Farnborough on a Sopwith scout and Standard 80-h.p. respectively to put the former through its tests. Mr. Mahl came back later with two passengers. Mr. Gower flew out to Wisley Hut and back on a 50-h.p. Blériot. Mr. Sippe was testing a new Bristol tractor biplane, and afterwards taking passengers. Mr. Jack Alcock flew the Sunbeam Farman and M. Jullerot the Bristol tractor.

On Wednesday, Lieut. Collet, R.M.L.I., went to Eastchurch on the Admiralty D.F.W. Brooklands will miss him and the very excellent shows he gave us. In the afternoon Mr. Dukinfield Jones was out passenger-carrying on the D.F.W. Mr. Mahl went for a cross-country flight on the 80-h.p. Sopwith. Mr. Waterfall made a couple of flights on the Martinsyde.

Mr. Sippe on the Bristol tractor, Mr. Jack Alcock on the Sunbeam, M. Farman and Mr. Gower on a Blériot flew to Kempton Park racecourse for a picnic, and were duly photographed by the "Daily Mirror." They were, of course, accompanied by lady passengers, as no picnic would be complete without the fair sex. It is wonderful what an appetite flying gives one, for the pilots were seen to make excellent teas at the "Blue Bird" before starting.

M. Teulade made several flights on the 45-h.p. Anzani Blériot, and Mr. Pixton delivered another scout to Farnborough.

On Thursday, Mr. Jack Alcock with Mr. T. Garne as passenger on the Sunbeam Farman flew to Sunbury and landed, then on to Epsom for breakfast, and returned later. M. Cuendet flew to Farnborough with a mechanic to deliver a two-seater Blériot (80 Gnome), and later delivered another with Mr. Victor Wilberforce as passenger. Mr. Sippe was out on the Bristol tractor. The 100-h.p. Sopwith scout returned from the works, towed by Mr. Sopwith behind his car.

On the Friday M. Cuendet delivered another 80-h.p. two-seater Blériot to Farnborough, accompanied by Mr. J. P. Wilson as passenger. In the afternoon two standard 80-h.p. Avros arrived, also the Avro scout. Messrs. Pixton and Mahl were flying the 100-h.p. and 80-h.p. Sopwith scouts and a standard 80-h.p. Sopwith. Mr. V. Waterfall was out on the Martinsyde, Mr. Sippe on the Bristol scout, and Mr. J. Alcock

on the Sunbeam-Farman. Mr. V. Wilberforce was doing good circuits on the 45 Anzani Blériot.

Mr. Raynham started on the Avro scout, but owing to the failure of an eye-bolt the chassis collapsed before leaving the ground, breaking the propeller and bending the crankshaft, besides damaging the wings and fuselage.

On Saturday Mr. Steinbach, a Vickers pupil, took his brevet, and Messrs. Barnwell, Pixton, Jack Alcock, Sippe, and Waterfall were out testing their machines before leaving for the Aerial Derby. Mr. Barnwell left on the 100-h.p. Sopwith scout at 11.55., Mr. Pixton on the 80-h.p. Sopwith scout at 12.10. Mr. Jack Alcock on the Sunbeam-Farman at 12.20. Mr. Mahl flew to Hendon at 1.45 on the standard Sopwith 80-h.p. Mr. Sippe went up twice later on the Bristol scout, but found it too misty, and Mr. Dukinfield Jones was out on the D.F.W.

On Sunday, despite much wind, Mr. Harry Hawker, only arrived that morning from Australia, made his first flight on the Sopwith scout (100 Monosoupape Gnome) with great success. Mr. Alcock flew the Sunbeam-Farman. Mr. Knight went out on a Vickers box-kite. Mr. Gower flew a Blériot, and late in the evening, when he had made sure that all but those indigenous to Brooklands had departed, Mr. Barnwell looped three times on the monosoupape Sopwith, which is by far the fastest and highest-powered machine to perform this feat.

Mr. Sippe, very naturally, disagrees with our comments on his flying in the Whit-Monday Handicap. An error was undoubtedly made in stating that he did not gain on Mr. Pixton, for the official times, not available at the moment, show that he finished one second behind Mr. Pixton though he started 8 secs. behind. Also, Mr. Sippe says that he was level with Mr. Pixton at Chertsey, but lost time through being obliged to go outside him at the turn. As to his flying too low, he says that it was necessary in order to keep on a different plane from the slower machines he was passing, and that if his engine had stopped the machine could be jumped over 100 feet on its own momentum, and so have allowed him to turn back into the track. Mr. Sippe's experience as a pilot certainly entitles his views to respect, and doubtless he is quite right. Probably half a dozen first-class pilots would have flown the race exactly as he did, and on the other hand another half dozen as good would have flown it differently. In air racing, as in other sports, everyone has his own ideas of how a race should be run.

A welcome figure at Brooklands on Sunday was Mr. Hawker, who had only landed at Southampton from Australia that morning. He is looking very fit and well, and is as keen as ever on flying. He is naturally most concerned with the Sopwiths to be built for the "Seaplane Circuit" and the Gordon-Bennett. His handling of the 100-h.p. monosoupape Gnome-engined Scout showed he has lost none of his old skill during his absence.

Flying at Eastchurch.

Mr. Alec Ogilvie was out twice during the week on his 50-h.p. N.E.C. Wright biplane. On Sunday he flew both that machine and his new 35-h.p. Green-engined machine. Mr.

Jezzi was out on Whit-Monday on his 35-h.p. J.A.P., and also made a couple of fine flights on Sunday.

Flying at Bognor.

The Curtiss flying-boat (Anzani engine) belonging to Capt. Bass, which has just been fitted with new wings of R.A.F. 6 section by Messrs. White and Thompson, Ltd., was out for trial this last week, and showed a marked increase of speed compared with the same boat fitted with Curtiss wings.

Mr. Whitehouse was pilot, and Mr. Loftus Bryan, the pilot for Messrs. White and Thompson's "Daily Mail" circuit boat, passenger.—A. B.

Flying at Sheffield.

On Monday, Tuesday and Wednesday of the last week Mr. Manton, of the B. C. Hucks Co., himself a native of Sheffield, gave a series of exhibition flights on the Redmire Racecourse. Except for a slight mistiness, the weather was excellent, and the attendance large. Mr. Manton executed "vois-de-fantaisie" of all the latest types and delighted the inhabitants of his native city.

Flying at Markyate.

From the "Hemel Hempstead Gazette":—

"Many Markyate people had an excellent view of an aeroplane on Sunday. Lord Carberry visited the camp of the Herts Yeomanry, which is pitched just inside Luton Hoo Park, and in the afternoon he flew in circles round the district several times, and incidentally looped the loop, much to the consternation of many, who thought he was falling. Later the noble airman flew back to Hendon."

Miss M. L. E., sending the cutting, remarks:—"The noble airman" is a gem of purest journalese which really ought not to blush entirely unseen in the columns of our local paper."

Flying at Bath.

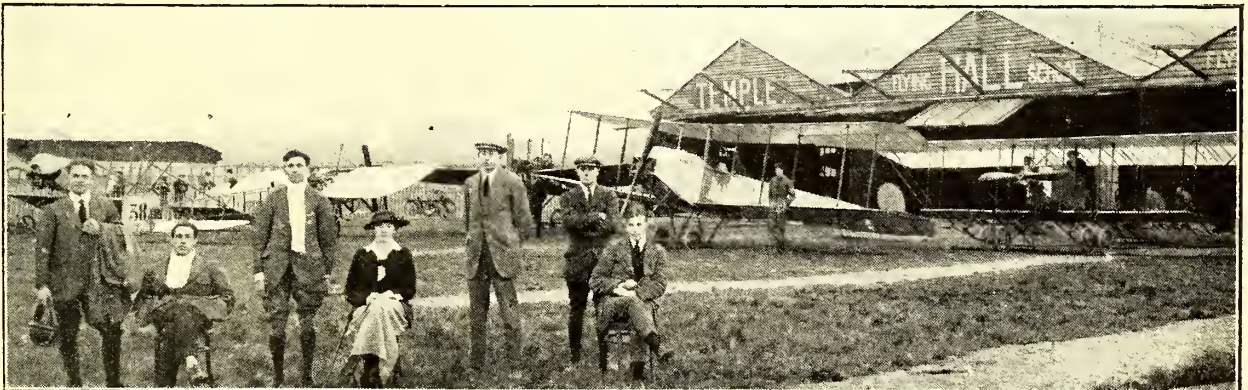
Mr. Rowland Ding has done much flying at Bath of late on the Handley Page inherently stable biplane (100 Anzani). He flew there from Hendon, via Salisbury, on the 26th ult., arriving in a 45-m.p.h. wind, and since then he has given exhibition flights on Lansdown—from a field only two miles from the centre of the city—on Whit Monday, June 1st, also June 2nd, 3rd, and 6th.

On Whit Monday there was a record attendance. The enclosures were well filled on each occasion, and twenty passengers were carried. Mr. Ding made some very fine flights alone—on several occasions disappearing behind clouds. Once he reached a height of 5,300 feet. He received a magnificent ovation on descending.

School Reports.

Brooklands.—AT BRISTOL SCHOOL: Instructors: Messrs. Jullerot, Merriam, and Stutt. Pupils with instr on machine: Lt Nugent (2), Mr. Rutledge (7), Mr. Charlesworth (7), Mr. Lucas (4). Strts or rolls alone: Lt Richard (1). 8's or eirs alone: Capt Walcot (1), Mr. Eastwood (1), Mr. Gresley (1). Machines in use: Three Bristol school biplanes.

AT VICKERS SCHOOL: Instructors: Messrs. Barnwell, Knight, Elsdon, and Webb. Pupils with instr on machine:



The Hall Flying School, showing the Avro, Blériot, Caudron, and Deperdussin school machines, and some of the pupils.

Lt Gillman (9), Messrs. Klingenstein (12), Miller (9). 8's or circles alone: Lts Eberli (2), Tennant (5), Messrs. Parker (8), Steinbach (6), Wilson (7), Miller (1). Certificates taken: Messrs. Duncan and Steinbach. Machines in use: Three school biplanes.

Hendon.—AT BEATTY SCHOOL: Instructor: M. Baumann. Pupils with instructor on machine: Messrs. Ruffy (14), Cheung (17), MacLachlan (15), Bentley (8), Elverson (12), Allen (12), Lt Maguire (52), Capt Bass (32). 8's or circles alone: Mr. Watts (15 mins). Machines in use: Wright biplanes (dual control).

AT HALL FLYING SCHOOL.—Pupils with instructor on machine: Miss D. Clifford ($\frac{1}{2}$ hr), Mr. J. Rose ($\frac{1}{2}$ hr). Strts or rolls alone: Messrs. Henry Gearing (4), H. C. G. Allen (12), J. Rose (2). 8's or circles alone: Messrs. A. F. Arcier (2), and Henry Gearing (1). Machines in use: Avro and Caudron biplanes, Blériot mono. Ten passengers taken up during week.

Shoreham.—AT SHOREHAM FLYING SCHOOL: Instructors: Messrs. W. H. Elliott and G. J. Lusted. Pupils with instr on machine: Messrs. Purnell, Wilson, Sholto-Douglas, Thompson. Strts or rolls alone: Mr. Sholto-Douglas. 8's or circles alone: Messrs. Derick Aikman, Hayland-Wilson, Gates, Purnell. Certificates taken: Messrs. R. P. Cannon, A. Maskall, P. H. Maskall. Machine in use: Henri Farman type (50 Gnome). Mr. W. H. Elliott, with Mr. B. H. England as passenger, flew the school machine to Horsham at 2,000 ft on Monday, returning at 4.30 a.m. on Tuesday morning in time for pupil work.

Waterloo (Liverpool).—AT LIVERPOOL AVIATION SCHOOL: Instructor: Mr. H. G. Melly. Pupils with instr on machine: Mr. Osborn-Groves (new pupil). Strts or rolls alone: Mr. Osborn-Groves. Machine in use: Blériot mono. A very windy week, only one day available for tuition. Mr. Osborn-Groves a very promising pupil. Mr. J. Crean, after doing first hops on May 10th, put his shoulder out playing polo and has not been out since.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/- id. per word after.

PATENTS.

HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD. (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

THE proprietor of the patent No. 12,775 of 1909 for "Improvements in Airships" is desirous of entering into arrangements by way of licence and otherwise on reasonable terms for the purpose of exploiting the same and ensuring its full development and practical working in this country.—All communications to HASELTINE, LAKE & CO., Chartered Patent Agents and Consulting Engineers, 28, Southampton Buildings, Chancery Lane, London, W.C.

TUITION.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

THE CAUDRON SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best-equipped School, enquire what the Caudron pupils are doing.

THE BRITISH CAUDRON CO., LTD.,
London Aerodrome, Hendon.

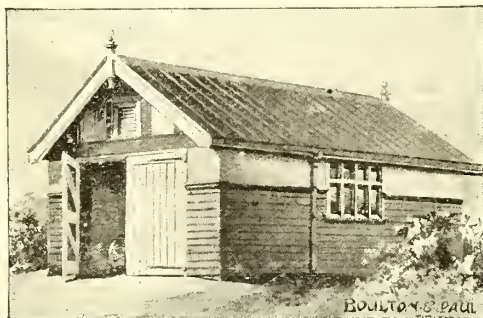
VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition on biplanes of up-to-date construction.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

PORTABLE BUILDINGS

BOULTON & PAUL Ltd., are experts in the manufacture of Portable Wood and Iron Buildings for all purposes. Always made from best materials, and constructed in perfect fitting sections for easy erection.



EXAMPLE OF MOTOR CAR HOUSE, DESIGN NO. 3.

PAVILIONS, CLUB HOUSES, HANGARS, MOTOR CAR HOUSES, CYCLE HOUSES.

GLAZED ROOFS for GARAGES.

MOTOR SPIRIT HOUSES, PETROL SAFES.

Inquiries Invited. Catalogues Free.

BOULTON & PAUL LTD., NORWICH

PASHLEY BROTHERS, SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

HALL FLYING SCHOOL.

HALL FLYING SCHOOL.—TUITION—Flying and Construction—given on

A vro Biplanes.

B leriot Monoplanes.

C audron Biplanes.

D eperdussin Monoplanes.

N.B.—Only tractor machines in use.

PASSENGER FLIGHTS.

Flying exhibitions.—Write at once for full particulars gratis to **HALL AVIATION CO., London Aerodrome, N.W.**

LIVERPOOL AVIATION SCHOOL; Waterloo, near Liverpool.—Tuition, passenger flights, exhibitions on Blériot monoplanes (3); Melly's infallible release gear; terms and prices on application.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIERE'S famous Integral Propellers hold all records; used by all leading aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD., 1B, Elthorne Road, Upper Holloway, N.** Telephone: 912 North. Telegrams: "Aviprop, Uphole," London.

MACHINES.

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD., 1, Queen Victoria Street, London.** Tel. 834 Bank.

BLERIOT monoplane, 50 h.p. Gnome, for sale. In first-class flying order. Can be inspected by appointment. Test flight allowed to competent pilot.—Box 533, **THE AEROPLANE, 166 Piccadilly, W.**

EMPLOYMENT.

MECHANIC (22), good all round, three years' experience in aero work, wants situation.—Letters to **HOESCHLE, 6, Heathfield Road, Bexley Heath, Kent.**

MOTOR mechanic seeks situation, aero; had aeroplane and engine experience.—Write "S," 8, Nightingale Road, Wood Green, N.

FIRST-CLASS German pilot for monoplanes, having flying certificate from the *Fédération Aéronautique Internationale*, seeks position at an English aeroplane factory; especially experience in Mercedes motors.—Apply, Box 571, c/o **THE AEROPLANE, 166, Piccadilly, W.**

FOREMAN wanted for small aeroplane works, six employees. Must be accustomed to making hollow section and streamline spars. 40s. per week paid to competent man. Good references essential.—Apply personally between 2 and 4 p.m. to **MANN & GRIMMER, Arlington Works, Surbiton.**

PHOTOGRAPHS.

THE favourite photograph of Mr. Gustav Hamel may be obtained from **F. N. BIRKETT, Photographer, 97, Percy Road, Shepherd's Bush, N.W.,** at the following prices, post free, unmounted:—12 by 10 in., 2s. 2d.; 8 by 6 in., 1s. 6d.; 6 by 4 in., 1s. 2d.—on mentioning **THE AEROPLANE.**

GUSTAV HAMEL.—Photographs of Mr. Hamel taken for him in February, with and without his machine. Not snapshots; high-class pictures, 5s. each. Several autographed copies for disposal.—**R. J. MCKENZIE, 1, Cornfield Road, Eastbourne.**

MISCELLANEOUS.

INVENTOR who has designed a scientific wing, capable of carrying weights without requiring propelling power, at all speeds, and would enable an aeroplane to start or land at low speed, wishes to hear from firm interested.—Box 570, c/o **THE AEROPLANE, 166, Piccadilly, W.**

HOW TO UNDERSTAND AEROPLANES. By S. L. Walkden. 1s. net; post free, 1s. 3d. **PERCIVAL MARSHALL & Co., 66, Farringdon Street, E.C.** "Explains how the design of aeroplanes has been improved."

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT Co., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three-ply, Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON & SONS, LTD., 130, Hackney Road.** Phone 4770 Wall.

LUNCH, TEA, or SUP at—

"THE AERO RESTAURANT."

(Just outside the gates of the Hendon Aerodrome.)

Pretty Tea-Gardens, with awnings, for fine weather. Glass-sided "Sun-Parlour" for cold weather.

Best of Food, well cooked and neatly served.

Lunch from 1s. 6d.

Tea from 6d.

Trade **MENDINE** Mark

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

M.S.C. MODEL aeroplanes and accessories. Models from 1s. 6d. to 25s. Send stamp for illustrated catalogue.—**MURRAY, SON & Co., 387a, High Road, High Cross, Tottenham, N.**

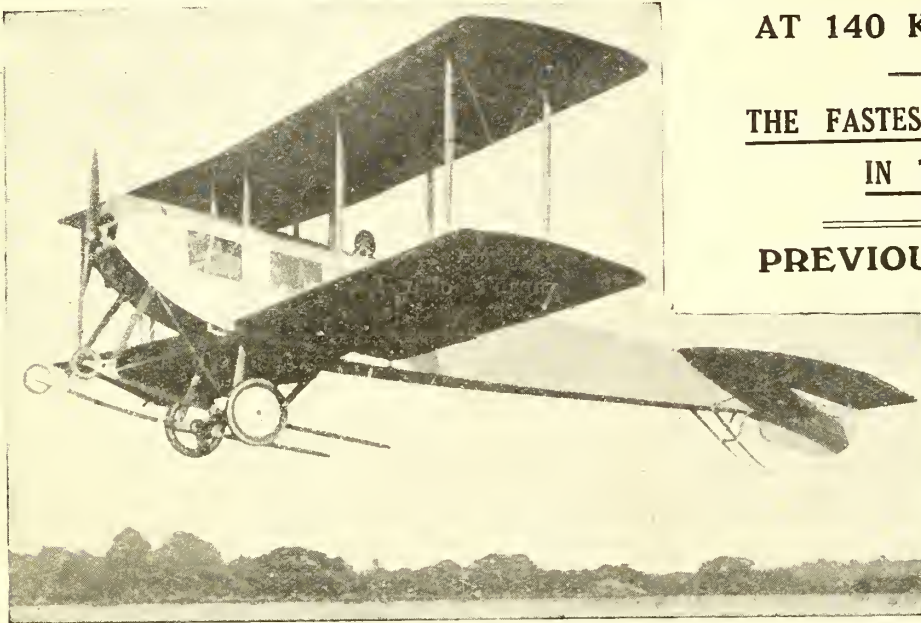
T. W. K. CLARKE & CO., Hampton Wick, Middlesex, for model aeroplanes and accessories. Rotary compressed air motors fitted with 16 in. propeller, £1 1s. Finest quality strip rubber, 1/4 in. and 3/16 in. wide, 1s. 4d. and 10d. doz. yds. Clarke carved propellers, 2d. per inch. Send for our lists containing over 120 items. Trade supplied.

THE LATEST SOPWITH SUCCESS:—

WINNING OF THE SCHNEIDER CUP

AT 140 KMS. PER HOUR.

THE FASTEST HYDRO-AEROPLANE
IN THE WORLD.



PREVIOUS RECORDS on
the preceding type
of SOPWITH
BIPLANE (80 h.p.
Gnome).

British Height Record
(Pilot alone) 11,450 ft.

British Height Record
(Pilot and 1 Passenger)
12,900 ft.

British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.

WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.

ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.

THE SOPWITH AVIATION CO. Ltd.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone: 1777 & 1343 KINGSTON. Offices and Works: KINGSTON-ON-THAMES.

Telegrams:
"SOPWITH, KINGSTON."

SAT. JUNE 20th Daily Mail AIR RACE

LONDON-MANCHESTER-LONDON

Hendon to Manchester and back, via Birmingham, in one
day (weather permitting)

For the "DAILY MAIL" GOLD TROPHY, and
PRATT'S £750 PRIZE.

(Presented by the Anglo-American Oil Co., Ltd.)

SEE THE START (At Intervals
9 a.m. to 12 noon) AND FINISH (about
5 p.m.)

AT HENDON

Admission, 1s., 2s. 6d., 5s., 10s.

Motors, 5s. and 10s.

Wonderful Air Racing every Thursday and Saturday
from 3 p.m.

TO-DAY, Thur., June 11. 6-MILE SPEED CONTEST.

NEXT Sat., June 13. SECOND JUNE MEETING.

30-Mile Cross Country Race for the Manio Cup.

Special Displays every Sunday Afternoon.

Passenger Flights Daily from £2 2s. 0d.

Admission 6d., 1s., 2s. Children Half-price. Motors 2s. (Inc. chauffeur)

LONDON AERODROME, HENDON, N. W.

Write to Dept. A.
London Aero-
drome Offices 166
Piccadilly, W.,
for a free copy of
the little booklet
entitled "Won-
derful Flying at
Hendon," which
contains numer-
ous illustrations,
a complete list of
fixtures for 1914,
and particulars
of passenger
flights, routes to
Hendon, season
tickets, etc.

"THE AEROPLANE," JUNE 18TH, 1914.

THE AEROPLANE



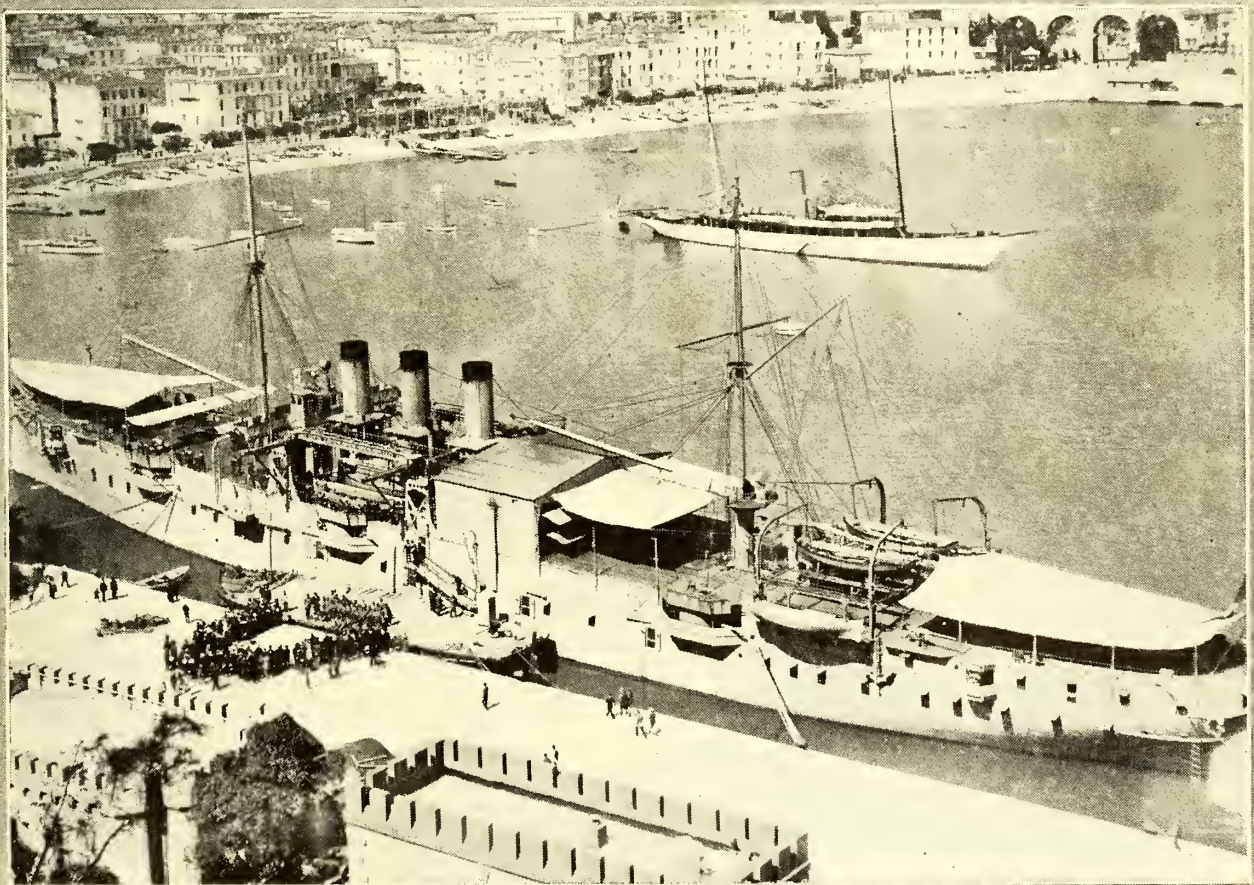
Edited by C. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, JUNE 18, 1914.

No. 25

THE MOTHER SHIP.



The cruiser "Foudre," mother ship of the French Naval Air Service, photographed from the Rock of Monaco, during her recent visit. The primitive way in which her aeroplanes are stowed may be seen. The shed aft of the funnels is of interest. This view demonstrates the necessity for small machines with folding wings.

The "Bristol" Flying Schools

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

We invite you to come and have a TRIAL LESSON, the charge of which is £2 2s., to be refunded upon joining the School.

Our method of DUAL CONTROL ensures rapid and thorough tuition. Each lesson lasts fifteen minutes and training proceeds in winds up to twenty miles per hour.

**DON'T WASTE TIME WITH ROLLING PRACTICE:
GET INTO THE AIR AT ONCE.**

TUITION FEE, covering all charges on either the biplane or monoplane, £75.

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

Telegraphic Address: AILERON, London. 'Phone: MAYFAIR 5407.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breams Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

"The Aeroplane" is not connected with any other business at the same address, whether associated with Aeronautics or not.

Subscription Rate, post free: Home, 3 months, 1/8; 6 months, 3/3; 12 months, 6/6. Abroad, 3 months 2/9; 6 months, 5/6; 12 months, 11/-.

The Advisory Committee and the Royal Flying Corps.

"The arbiter of others' fates a suppliant for his own."

On June 9th there was issued by the War Office a document of the gravest importance to the welfare of the Royal Flying Corps. This is the report of the Advisory Committee for Aeronautics on the inquiry into the cause of the accident to aeroplane No. 204, which resulted in the deaths of Captain Allen and Lieutenant Burroughs of No. 3 Squadron, Royal Flying Corps (Military Wing), on the 11th of March last at Netheravon.

It may be well to recapitulate the circumstances of the accident.

Aeroplane No. 204 was originally known as B.E.4, and was an experimental tractor biplane with staggered planes, a Gnome engine, and a fuselage of rectangular section. She therefore differed materially from the ordinary B.E.s of the B.E.2 type. In many respects this type was better than the B.E.2, but there were two obvious and serious defects. The fuselage tapered almost to a point—when looked at in side elevation—so that the fixed side area aft was insufficient to give directional stability, and the rudder, of large size and with a considerable balancing area forward of the rudder-post, was perched on top of the tail, its only support being the vertical tube on which it was mounted. This tube was unsupported sideways and unstayed in any way.

On March 11th, Captain Allen, with Mr. Burroughs as passenger, started from No. 3 Squadron's sheds at Netheravon, and on reaching a height of about 300 feet made a turn. The tube on which the rudder was mounted broke off close to the fuselage, and the rudder fell away from the machine, which spun round till it got into a nose-dive, and struck the ground nose first, killing both officers.

Bearing these undisputed facts in mind, let us now consider in detail the report of the Advisory Committee, which is reproduced in full. It takes the form of a report to the Secretary of the War Office, and reads as follows:—

ADVISORY COMMITTEE FOR AERONAUTICS.

Bushy House, Teddington, Middlesex. May 20th, 1914.

Sir,—The Committee have had under consideration your letter of 3rd April, asking them to inquire into the cause of fracture of the rudder post of aeroplane No. 204. The fractured post has been carefully examined at the National Physical Laboratory, and the material of the post has been submitted to mechanical tests and to microscopic examination.

The Committee have instructed me to reply as follows on the specific points referred to in your letter:—

1. *Sufficiency of the original strength of the tube as designed.*—The maximum stress on the rudder post under the most severe conditions which, in the opinion of the Committee, could occur during flight, has been estimated, and the unwelded tube was found to be capable of bearing not less than three times this stress. The maximum stress thus estimated only falls on the rudder under exceptional conditions, and this figure implies, therefore, a much higher value than 3 for the factor of safety, as the term is at present ordinarily used in aeronautics.

The Committee are of opinion that the tube, unless it

were damaged by the method of attaching it to the rudder, was sufficiently strong.

2. *Effect of filing.*—The Committee are of opinion that the effect of filing was negligible.

3. *Effect of welding.*—The evidence afforded by the report showed that the tensile strength of the tube was considerably reduced by the welding process, but this reduction alone was insufficient to account for the accident. It is well known, however, that heating steel, even for a short time, to the temperature required for autogenous welding, in addition to seriously diminishing its strength and ductility, also reduces its power to resist alternating stress or shock.

4. *Effect of possible bending and straightening, or vibration.*—Examination of the sound portions of the tube did not furnish evidence of an effect due to possible bending and straightening. Such effect would, however, be most likely to occur at the weakest part of the tube, and might be masked by the fracture. There was some slight corrugation on the compression side of the tube which might have existed prior to the fracture, indicating that bending had taken place or might have been caused at the time of the accident.

Vibration of the rudder, if set up by some cause producing impulses synchronous with the natural oscillations of the rudder might give rise to stresses of considerable magnitude. No evidence was before the Committee that this had occurred, but the necessary conditions might arise if the engine were run while the machine was on the ground.

5. *Effect of absence of wood filling.*—The margin of safety referred to under (1) was calculated on the strength of the tube alone, without wood filling. The factor of safety would not be raised to any considerable extent by the presence of the wood filling.

General conclusions.—So far as it is possible to judge from the available evidence, the stresses to which the rudder post was subject at the time of the accident were well within the margin of safety of the design, and the Committee are forced to the opinion that some flaw existed before the machine left the ground. It does not follow, however, that such flaw could have been detected by external examination.

The fracture took place across a section where the bending stresses were not far from a maximum, and where, owing to the fact that the steel had been raised to the temperature required for autogenous welding, and thus "overheated," the tube was weakest. The machine during its life, though not at the time of the accident, had been subject to severe stresses, and it is possible that the action of these had been sufficient to set up a flaw in the region of the tube, which had been "overheated" by the welding, and that this flaw had gradually developed so as to lead to the breakdown. Or again, it is possible that the rudder post had been slightly bent by accident or by rough usage, and that the flaw had been started thus, or as a result of subsequent straightening; though, from experiments which have been conducted, it seems unlikely that the flaw can have

originated in this manner. If, however, this were the case, the bending must, as would be expected, have been confined to the neighbourhood of the fracture where the tube was weakened by the welding. The microscopic examination did not show signs of such ill-treatment, but near the fracture these may have been masked by the break itself.

There is no reason to suppose that the slight filing noted, or the absence of the wood filling, contributed to any appreciable extent to the disaster, while, apart from its condition at the weld, the material of the post was good and amply strong enough for the stresses it had to bear in use.

I am, Sir, your obedient servant,

(Signed) R. T. GLAZEBROOK (Chairman).

The Composition of the Advisory Committee.

Firstly, it may be well to remember that the Advisory Committee consists of a number of persons who, because of their official positions or because of their eminence in some branch of science, are entitled to give to the world opinions which are worthy of respect, so that the Committee may, in a manner, act as a kind of Court of Appeal in matters of serious importance.

The members of the Committee are:—The Right Hon. the Lord Rayleigh, O.M. (President), an eminent physicist; Dr. R. T. Glazebrook, C.B., F.R.S. (Chairman), head of the National Physical Laboratory; Mr. Horace Darwin, F.R.S., an authority on measuring instruments; Sir G. Grenfell, F.R.S.; Brigadier-General Henderson, C.B., D.S.O., Director General of Military Aeronautics; Mr. F. W. Lanchester, an authority on aeronautical mathematics; Mr. H. R. A. Mallock, F.R.S.; Mr. Mervyn O'Gorman, C.B., Superintendent of the Royal Aircraft Factory, and a consulting automobile engineer; Professor J. E. Petavel, F.R.S.; Commander Charles R. Samson, R.N., commanding the Naval Flying School; Dr. W. N. Shaw, F.R.S., head of the Meteorological Office; and Captain Murray F. Sueter, C.B., R.N., Director of the Air Department at the Admiralty.

On studying this list of names it is evident that every member of the Committee is not entitled, and is obviously not intended, to give an opinion on every subject which it may be called upon to discuss. For example, the Naval and Military members would not venture an opinion on matters involving higher mathematics, nor would the purely scientific members, presumably, endeavour to influence a report concerning a Service question. Therefore one cannot hold every member of the Committee responsible for any report issued by the Committee as a whole. This is particularly fortunate in the case of the report under discussion, for if the position were otherwise the fortunes of the Royal Flying Corps would indeed be in a parlous state.

Unfortunately everyone does not quite understand the position, and doubtless this Report, carrying as it does in theory the weight of all the names quoted above, will be used to shield those who are really responsible for the deaths of Captain Allen and Mr. Burroughs from the consequences of their mistakes.

Let us now take the Report clause by clause.—As to No. 1. In giving evidence at the inquest on the victims of the accident, a Mr. Green, who is understood to hold a position of some importance at the Royal Aircraft Factory, stated that the tube in question was made of 20 gauge steel, that is to say, it was about one twenty-fifth of an inch thick. The diameter of the tube was not stated, but I gather it was not more than an inch and an eighth. Now, no practical man with any experience of steel tubing would trust steel tube of such a gauge and diameter to take any lateral load at all, unless it were held firmly at each end. No tube maker can guarantee a tube to be dead to gauge throughout its length, and a gauge or two less at any one point makes a very great difference in strength. And, be it remembered, this tube was absolutely unsupported. Anyone with a natural eye for material and sizes would have seen the tube, fitted as it was, to be unfit for its work. Rudders have been fixed in a similar position on Bristol machines of the same period, but they were mounted on tubes of at least twice the diameter and about 14 gauge steel, with heavy liners where the control-wire levers

were fixed, so that they were actually fitted in a different way and were adequately strong.

Estimated Stresses.

The "estimated stress" mentioned in the Report is therefore apparently absurd, and before accepting it at all seriously, one would like to see the figures and the premises on which they were based. "The most severe conditions which could occur during flight" may well mean nothing more than the maximum stress due to turning the rudder to full lock while flying in a straight line. Scientific calculations are almost invariably based on normal conditions of use, which is precisely why they are valueless. Possibly, also, the employees of the National Physical Laboratory, who are presumably responsible for this "estimate," may have forgotten that a balanced rudder was fitted, and I imagine that a balanced rudder puts a very much greater strain on a rudder-post than does one which merely trails, because in the former the centre of pressure comes more directly on the pivot-line than in the latter.

It seems likely, however, that a very much more important point has been forgotten in the calculations, namely, the stress which may be set up, not when the rudder is turned to deflect the machine from a straight course, but when it is jerked back in the opposite direction to check the machine from spinning. When once the spin has begun the rudder probably takes the load almost full on the flat of its surface, and with remarkable suddenness. If a gust struck the machine at the same moment a stress might be set up very much like shock loading. Yet all these circumstances "could occur during flight." One would like to know whether they were taken into the calculations, and, if so, whether a piece of tube of about an inch diameter and of approximately a twenty-fifth of an inch thick would be likely to stand such a stress, let alone "three times this stress," as alleged in the Report.

The Triple Alliance.

Before accepting this Report as being in any way convincing it will be well to remember the very obvious close alliance between a section of the Advisory Committee, the National Physical Laboratory, and the Royal Aircraft Factory.

Hitherto we have had to complain on behalf of the aeronautical industry that the R.A.F. was at once its judge, one of its only two customers, and its keen competitor. This position, thanks to systematic agitation, has been ameliorated. Now we have the much more serious position that the safety of the pilots who fly aeroplanes built by the Royal Aircraft Factory is in the hands of an alliance which may include within itself, as in this case, judge, jury, expert witnesses for the defence, and prisoner at the bar.

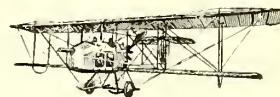
The position is full of grave menace not only to the lives and limbs of those officers who are the pioneers of military aviation, but to the whole future of the Royal Flying Corps. In this case it gives one an unwholesome impression that a deliberate attempt is being made to save the face of the R.A.F. over a piece of inexcusably bad design. As to the future, it leads to an unpleasant feeling that the joint products of the N.P.L. and R.A.F. may through the united influence of the alliance be forced into a position of eminence of which they are unworthy, to the detriment of better and safer aeroplanes produced elsewhere, with the result that our military aviators may continue to incur unnecessary risks, and the progress of the Royal Flying Corps to absolute efficiency may be seriously delayed.

We have a possible instance in the case of the new R.E. type biplanes. They are exceptionally good flying machines, judged purely as flying machines, and we have been told with pride by a number of the Advisory Committee that they are the joint product of the N.P.L. and R.A.F., but we have no guarantee that structurally they are any better than the B.E.s which killed Mr. Arthur and Captain Downer and Captain Allen and Mr. Burroughs, or than the F.E. which killed Mr. Haynes. In fact, we know that R.E. elevators have bent and rudders have broken under stresses which "could occur during flight."

Supposing an independent constructor produces a better aeroplane—as one or two will do before long—better as a flying



LEARN TO FLY

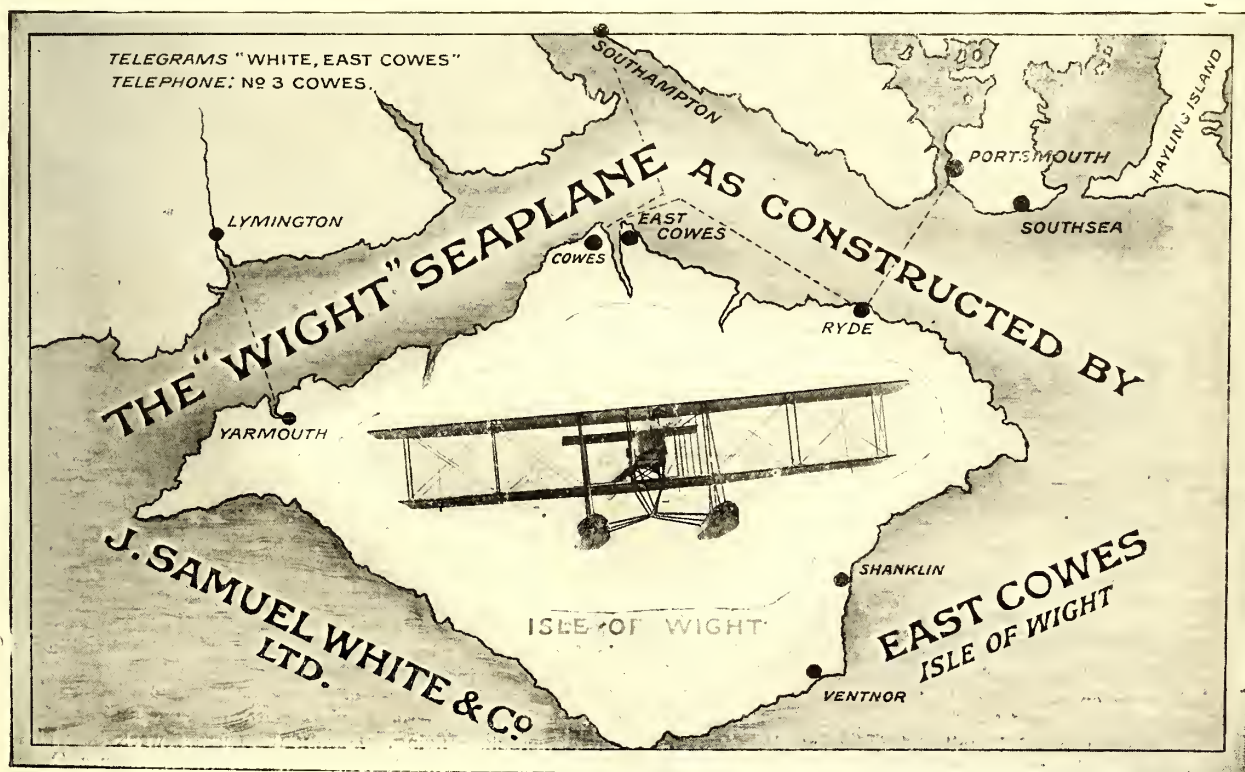


AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS LIMITED,

Aviation Department, Vickers House,
Broadway, London, S.W.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

machine, better built, and easier to land. It will be interesting to see whether the publication of a Government blue-book will be postponed so that a description of such a machine's points may be included by the Advisory Committee, and whether members of the Advisory Committee will deliver lectures on it to scientific societies so that it may receive due attention in the Press, and whether the aeronautical correspondent of the "Times" will devote a column to its virtues, and whether sufficient orders will be guaranteed to its maker by the War Office to warrant his engaging over a thousand hands and allowing most of them to kill time in semi-idleness pending the delivery of sufficient engines for him to turn out the vast quantities required. Such things might happen, but they do not strike one as likely.

What is Negligible?

Turning now to Clause 2. The Mr. Green, to whom reference has already been made, gave evidence at the inquest that the rudder-tube had been filed at the spot where it was welded to the rudder, presumably where the frame is joined to it. The Advisory Committee think this is negligible, a non-committal verdict. If the filing was in the tube below the weld and in the unsupported tube it was not negligible, but very dangerous. One twenty-fifth of an inch does not leave much depth for a file to cut into. If inside the rudder-frame it was less dangerous, but, in either case, so long as it was not on the line of the fracture it evidently had nothing to do with the accident. Nevertheless, the word "negligible" is unfortunate under the circumstances. Nothing in the way of bad work in an aeroplane is negligible, and there may be such a thing as "criminal negligence."

In Clause 3, we find an admission of bad workmanship. If responsibility must be admitted, it is no doubt better to put it onto a mere workman than onto a designer, designers being salaried officials. However, some responsibility must rest on the designer who specified acetylene welding in such a position. On more than one occasion attention has been drawn in this paper to the dangers of acetylene welding. Here and there one finds exceptional men who can by sheer skill produce welds of a strength equal to that of the unwelded steel, but they are very hard to find. The mere fact of heating steel to the point where it "flows" like solder reduces it to the carbon value of ordinary iron, and only by the skilful use of a super-carbonised "loading stick" can the lost carbon be replaced. Even then one is depending too much on the fallible human element. Autogenous welding should never be used except in compression, yet one finds in aeroplane after aeroplane such welds used in tension. The R.A.F. is particularly fond of such work. The control levers on the B.E. rudders and elevators, for example, are fixed onto the rudder and elevator tubes simply by welding the edges of the metal to the bare surface of the tubes. There is no margin for a human mistake anywhere, and why no one has been killed through one breaking is a mystery—or a miracle—apart from the added danger of weakening the tubes outside the actual weld by overheating. If the bases of the levers were flanged out to fit the tubes all round, and then pinned and sweated on they would be vastly safer, even if not so strong theoretically.

As to clause 4, this question should never have been possible. The tube should have been so stayed by wires to the top that bending would have been impossible. Likewise with the question of vibration. No vital part such as this should be so fitted that it could break clean away if deteriorated by vibration.

Wood Filling.

Clause 5 is peculiar, for one gathers that what was believed by the victims to be wood filling was merely a plug at the top

of the tube, presumably to keep the wet out, and that it did not go down more than a few inches. Wood filling of tubes is an evil custom, and should not be permitted, for it gives no real support whatever and merely increases weight. The only place where it could be useful would be in a tube under compression, where in case of a fracture it would prevent it from shifting its position. For example, if this tube had been stayed by wires to the top and had broken at the bottom owing to synchronous vibration, wood filling would have kept it in place. It is still better in any such case to use tube which has been drawn down onto an internal liner made of two or more tubes each of the section formed by an arc of a circle and its radii, so that it is cross-stayed inside. In such cases it has been proved that continuous vibration will break the outer casing and leave the liner intact, and that the whole job will stand more vibration than a single tube of the same diameter and weight.

Lastly we come to the "General Conclusions." The Committee is perfectly correct in "the opinion that some flaw existed before the machine left the ground." The flaw existed before the machine even left the shop in which it was built. The flaw was sheer inexcusable and almost incomprehensible ignorance of material and its uses. No amount of "estimating stresses" will ever prove to any practical man that there was not a flaw in the design, and any aeroplane maker who has ever worked to R.A.F. drawings of B.E. parts will know how frequent such flaws in R.A.F. calculations have been, and how very many times whole stocks of finished parts have been scrapped simply because someone with a little common sense has persuaded some brilliant theorist that his "estimated stresses" were too low and the parts designed too light to stand them.

It is earnestly to be hoped that the Royal Flying Corps will not let the matter rest here. The situation is far too serious for this affair to be glossed over so lightly by mere talk of "material good and amply strong enough for the stresses it had to bear." We may admit that the material was good, but was there enough of it, was it in the right place, was it properly arranged as a trained engineer would arrange it, was it treated constructionally as a practical steel worker would treat it? These are the things we want to know before we can allow the Advisory Committee, with all its respected and high-sounding names, to set the seal of its approval on work which has cost us the lives of not merely personal friends but of officers of high value in the King's Service.

There was some mention at the time of the accident of a military Court of Enquiry into the cause, also the report of the Royal Aero Club's Accidents Investigations Committee is still awaited. Will those verdicts be influenced by this report of a section of the Advisory Committee? Will these independent investigators rely on the opinions of those who are used to handling metal or of those whose work is done with paper and pencil?

Practice, by no means for the first time, finds itself directly opposed to theory. Let it be remembered that the theory of an engineer whose name in his day was quite as great as any of those on the Advisory Committee, proved that a steamship could never cross the Atlantic, and that theory was published just a week before the feat was accomplished. Theory proved that no machine heavier than air could rise from the ground, and even at the moment the Wrights were flying. Now theory may well have taken the opposite course, and may be trying to save its face by proving that practical difficulties are not as great as practical men say they are. We must have the truth in this case, without fear or favour of great names or reputations. The welfare of the Royal Flying Corps is greater than either.—C. G. G.

Mr. Raynham Loops.

On Friday evening last, Mr. F. P. Raynham, at Brooklands, looped the loop on a new standard type Avro biplane (80-h.p. Gnome), not strengthened for the performance. His first two attempts merely resulted in tail slides, but at the third and subsequent trials he made perfect loops. For a long time Mr. Raynham, although little known to the public, has been

the finest all-round flier in this country. He has never gone in for ordinary trick flying of any sort, but his handling of any machine, his perfect alighting either on land or sea, and his wonderful judgment of speed, height and distance have shown him, to all those who know, to be a master of the art of aeroplane flying. During the current week he will be flying in the North of Ireland, near Lurgan, County Down, at the headquarters of the Orange Party.

THE BEARDMORE AUSTRO-DAIMLER

DESIGN

AERO ENGINE

FITTED TO LOHNER BIPLANE

—: WINS THE :—

SCHICHT PRIZE

OFFERED BY THE SCHICHT CO. OF AUSTRIA. TO THE WINNER

— OF A CIRCULAR FLIGHT EXTENDING OVER THREE DAYS —

— PROVING IT YET AGAIN TO BE —

THE WORLD'S FINEST AEROPLANE ENGINE

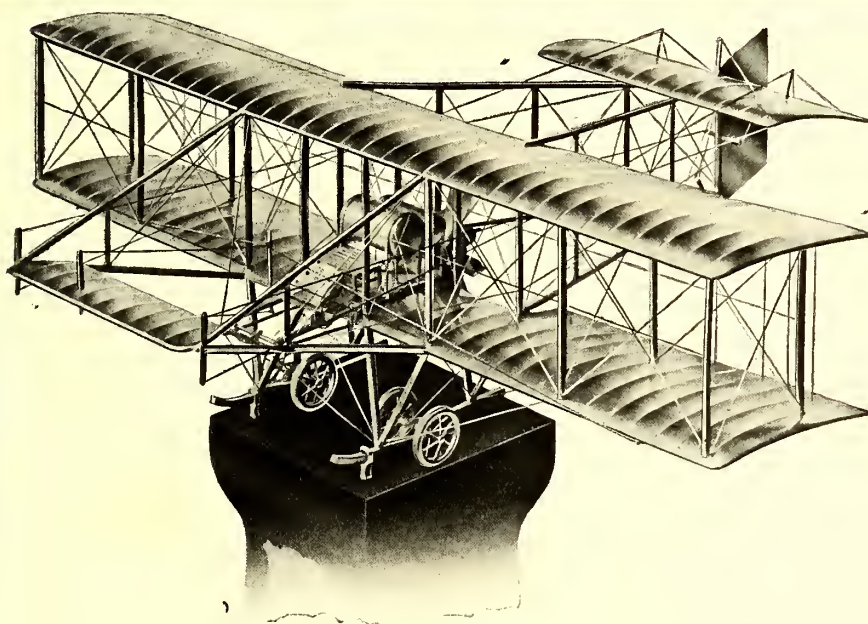
BEARDMORE AUSTRO-DAIMLER AERO ENGINE, LTD.

Selling Representatives:—

AUSTRIAN-DAIMLER MOTOR CO., LTD.

112, GREAT PORTLAND STREET, LONDON, W.

C.D.C.



Models



The Company specialise in the production of Silver scale Models of Aeroplanes, correct in detail and of fine workmanship.

Photographs and Estimates submitted free.

Representative sent to any address to take particulars

MAPPIN & WEBB, LTD.

158-162, OXFORD STREET, W. 2, QUEEN VICTORIA STREET, E.C. 220, REGENT STREET, W.

Paris: 1, Rue de la Paix. Lausanne. Rome. Nice. Biarritz. Buenos Aires.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Aeroplanes of the Future—I.

BY W. H. SAYERS.

The growing demands of the Services for aeroplanes of greater size, greater carrying capacity, and greater radius of action, the results obtained in Russia by M. Sikorsky, and the various attempts which are shortly to be made on the trans-Atlantic flight, all tend towards the conclusion that the day of the really big aeroplane is close at hand, and it becomes a matter of immediate interest to consider the probable lines of development of the large machines of the near future.

The first and possibly the most serious obstacle in the way of such progress is, of course, the difficulty of obtaining a satisfactory motor. Still, units of 300 h.p. apiece are now obtainable and as there is a distinct likelihood that the class of machine we are now considering will be fitted with at least two motors, the step from the 200-h.p. machine of the present day to the 600-h.p. machine of the day after to-morrow is quite practicable as far as motors are concerned. Nevertheless, a 500 h.p. motor would be a distinct help towards such developments, as it is most desirable that a two-motor machine should be able to fly with fair security with only one of its two motors in action, and with the larger horse-power of motor available this requirement could be more easily met.

It would, of course, be possible to use more than two motors and thus render immunity from engine breakdown still more certain—as has been done in the Sikorsky—but an undue multiplicity of engines and their attendant gadgets is undesirable from several points of view, not the least of these being the possibility of effecting appreciable savings in weight per horse-power in really large motors, wherein the accessories only weigh the same as in small ones.

The problem of the motor and the problem of the construction of the aeroplane itself, though to some extent mutually interdependent, are essentially different, and it is to the latter that one wishes to draw attention here.

First and foremost amongst the difficulties that face the designer is that of the strength to weight relations of wings of increasing span. If the same number of bracing points and the same angles of bracing wire be adhered to in wings of varying sizes, it will be found that the size and weight of the spars necessary to carry the same load per square foot of wing area increases very much more rapidly than the area, and consequently than the load carried. And that if it is desired to keep the weight proportional to the effective area, the number of bracing points must be increased in the same ratio as the span, while the angles of the bracing wires must remain similar in each case. It therefore becomes obvious that the possible increase of span—using present materials—will be strictly limited, as a span will speedily be reached at which the machine becomes a positive network of struts and wires. It would be possible to double any present type machine by a process of jointing the wing tips of two such machines together and strutting and cross-bracing their landing carriages together, thus producing a machine of twice the span and area at only slightly more than twice the weight, with the main weight divided into two units each supported directly by its own section of lifting surface.

Factors of Safety.

Messrs. Martin and Handasyde write:—"We note that, in Report No. 96 of the Advisory Committee for Aeronautics, while suggesting the factor of safety over normal load in the construction of aeroplanes should be not less than 12, the Committee state their opinion that this factor is unattainable in a practical machine. In the case of the Martinsyde monoplane this 'impossible' ideal is an actual fact, as the factor of safety is over 12 in all important parts of the machine, and even this could be increased without spoiling its flying capabilities.

"We quite agree as to the necessity of a factor in the neighbourhood of 12 for more reasons than that of safety alone. Lightly-built machines require constant attention in adjustment, owing to the stretching of wires and to give in

By increasing the chord and suitably redesigning the spars it would be possible by such an arrangement to double the span and keep the total weight per square foot of surface down to no more than that of single span original. Such a method of construction appears to have distinct possibilities, particularly for seaplane work.

Such a design would suffer somewhat from a very large moment of inertia laterally, but there is some reason to suppose that this is by no means so grave a defect as some of our scientific constructors would have us believe.

Further increase in area without adding to the span, and possibly attended with an actual reduction in the structural weight per square foot, may be made by the adoption of a multiplane structure instead of a mono or biplane arrangement, probably at first of three planes, though more may follow.

Obviously, too, the total surface might be again doubled by placing two sets of wings in tandem—a method used in the earliest days by Prof. Langley, and shown by M. Eiffel to possess many good features from the point of view of aerodynamic efficiency and stability.

It is, therefore, quite possible with present-day materials and methods of construction to build machines with something like 10,000 sq. ft. of lifting surface without unduly increasing the structural weight of the lifting surfaces relatively to their total area. Machines of such size would obviously be difficult to land except in certain prepared spaces, and at quite low speeds, and hence one would not expect a loading greatly exceeding 4 lbs. per sq. ft., corresponding to a minimum speed of about 35 m.p.h.

Even at such speeds the landing chassis would present some distinctly difficult problems, and any extensive application of machines of such size to overland flying is not probable till motors of practically absolute reliability are developed.

For water work the question of suitable landing spaces does not arise to such an extent, hence such machines will—in the beginning at any rate—be seaplanes, to which purpose the double fuselage system would lend itself admirably, the substitution of two long floats for the two fuselages presenting no serious difficulties of construction.

To two such floats a tandem arrangement of surfaces with the leading planes more heavily loaded, and possibly somewhat smaller in area, might easily be adapted, giving a large measure of inherent longitudinal stability without the use of a tail. Elevator control surfaces might well be incorporated in the leading plane structure, producing a variety of "canard" machine, a type having many good points, and whose tendency to spiral instability, in the present state of knowledge as to side area effects, could be overcome by a little care in design.

The motors would probably be fitted within the floats themselves, and a navigating cabin carried on the centre of the lower leading plane would give the navigating officer an unimpeded view. Obviously, too, such a machine would give ample opportunity for fitting weapons of offence, giving an open field of fire in any desired direction.

spars, etc., and they very soon lose their efficiency under continuous work. In the Martinsyde monoplane, no adjustment at all is fitted to the main cables, yet the machines can be used indefinitely in all weathers without losing their original flying 'form.' We have planes now in the shops which have been superseded for others of a more efficient design and have had over a year's hard work, yet they are in as good a condition as the day they were fitted on.

"Of course a machine built in this manner comes out heavier than a weaker one, hence the difficulty most constructors have in getting a machine to fly well without unduly reducing its strength, yet the Martinsyde can do its 85 to 90 m.p.h. on a speed test, will carry a pilot and passenger for six hours without having to descend for fuel, and then climb quite fast enough for all practical purposes."

Naval and Military Aeronautics.

GREAT BRITAIN.

From the "London Gazette," June 12th, 1914:—

War Office, June 12th.—Territorial Force.—Infantry.—10th (Scottish) Battalion, King's (Liverpool Regiment).—Colonel John George, the Marquess of Tullibardine, M.V.O., D.S.O., lieutenant-colonel commandant Scottish Horse Yeomanry, is appointed to the honorary colonelcy of the battalion. Dated June 13th, 1914.

India Office, June 12th.—The following appointments have been made in India:—

Central Flying School.—To be Commandant: Capt. S. D. Massy, 29th Punjabis (December 1st, 1913). To be Instructors: Capt. C. G. Hoare, 39th Central India Horse (April 14th); Lieut. H. L. Reilly, 82nd Punjabis (December 28th, 1913); Lieut. C. L. N. Newall, 2nd Batt. 2nd Gurkha Rifles (November 17th, 1913).

NAVAL.

NAVAL APPOINTMENTS.

The following appointment was made at the Admiralty on June 10th: Lieut.-Commander H. L. Woodcock, to the "Pembroke," additional, as Squadron Commander, for command of Farnborough Airship Station, and for Naval Airship No. 4, in command, temporary, to date June 9th.

The following appointments were made at the Admiralty on June 11th:—Lieut.-Commanders: F. L. M. Boothby, to the "Pembroke," additional, as Squadron Commander, for special service with R.N. Air Service (previous orders cancelled), and H. L. Woodcock, to the "Pembroke," additional, as Squadron Commander, for command of Farnborough Airship Station, and of Naval Airship No. 4, temporary (previous orders cancelled), both to date May 29th.

Lieutenant: R. B. Davies, to the "Pembroke," additional, as Squadron Commander, for special service with R.N. Air Service (previous orders cancelled), to date May 29th.

The following appointment was made at the Admiralty on June 15th:—Lieutenant D. H. Hyde-Thompson, to the "Pembroke," additional (T.), for duties with Aircraft, temporary, to date June 13th.

* * *

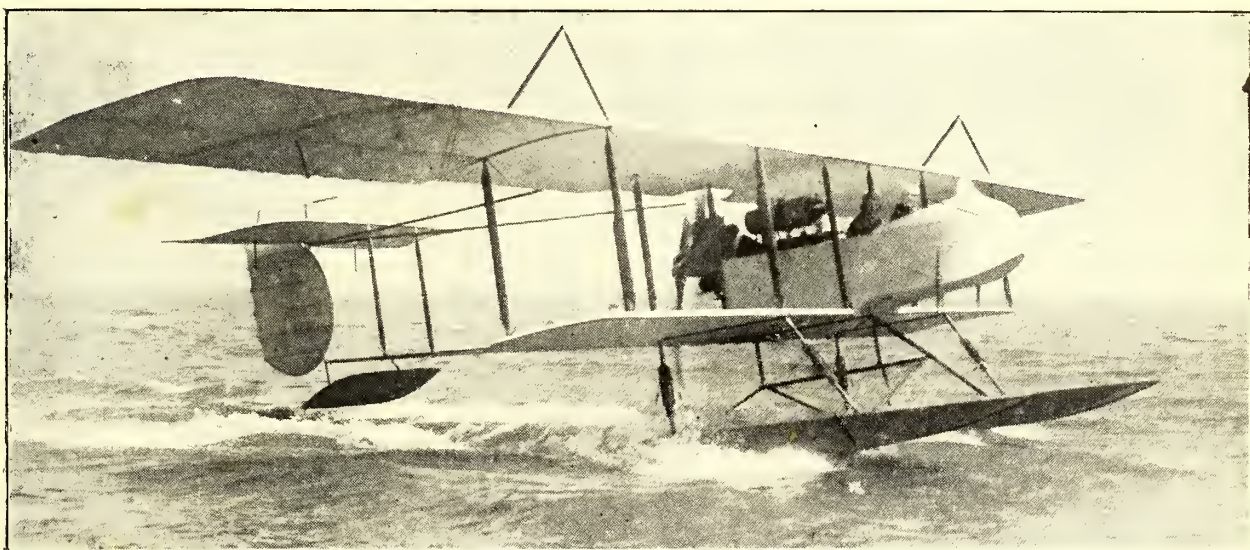
On the same day that the appointments of Lieut.-Commr. Boothby and of Lieut. Davies were announced, a short paragraph appeared in various papers stating, on the authority of a cable from Aden, that these two officers were then at Berbera

investigating the possibilities of using aircraft in Somaliland. Readers of this paper will recollect that something over a year ago it was suggested in these pages that our little Army airships, obviously useless against a modern army, might be used with advantage either on the North-West frontier of India or on a Mullah-hunting expedition in Somaliland. Some months later it became known to the writer that this suggestion was being seriously discussed, and in February it began to get about in Service circles that the Navy, having taken over the whole airship service, intended to send an airship to Somaliland. This fact was published in *THE AEROPLANE*, though merely as a rumour, in March last. So regular readers will not be surprised at the announcement of what will be the most important step to be taken by the King's Services for very many years—namely, the trial on active service of an absolutely new weapon.

Nothing quite so radically new has been done by this country since the first use in actual war of firearms by British troops at Creçy, or, at any rate, since the introduction of steam vessels of war. This aspect of the matter seems entirely to have escaped the imaginative powers of the lay Press, presumably too fully occupied with the eminently sane action of an unhappy young woman in retiring from a hopeless existence. The "Express" alone seems to have recognised the importance of the occasion.

Commander Boothby is, of course, one of our most experienced airship officers, having been concerned in the experiments on the ill-fated "Mayfly" at Barrow. A paper on airships read by him before the United Services Institute some two years ago was the most convincing exposition of the uses of such vessels that has yet been produced. Lieut. Davies, until recently second in command of the Naval Flying School at Eastchurch, is a very able aeroplane pilot. Both are eminently suited to decide whether the meteorological and topographical conditions of Somaliland permit of the use of aircraft of either species.

An officer who has spent some time in Somaliland, and who is also an aviator of ability and experience, told the writer some time ago that the chief drawback, apart from the intense heat, is that it will be necessary to cross a mountain range some 4,000 ft. high before reaching the central plateau where operations against the Mullah's forces will be conducted. The height offers no difficulties to aircraft, but no one knows the effect on the air of the great heat beating on the rocks. He therefore assumes that the aircraft will have to be transported by land to the advanced base from which they will operate, and this



M. Fischer testing a new Henri Farman seaplane (100-h.p. Gnome) at Yarmouth

question of the transport of the vessels and supplies of hydrogen, petrol and spare parts will necessarily present grave difficulties.

The aeronautical correspondent of the "Times" newspaper assumes that the "Parseval" will be sent to Somaliland. This gentleman is not necessarily so well informed on matters affecting the Naval Air Service as he is on the affairs of the Royal Aircraft Factory, so he may be wrong. If the first Forlanini can be got ready in time it would doubtless be better for the purpose, as experiments in Italy have shown that the gas in these vessels is less affected by variations of temperature than in others, because of the outer jacket of air surrounding it. However, recent experiments on the "Parseval" with special gas-tight flexible varnishes and aluminium colouring have produced highly successful results in preventing loss of gas, so possibly this vessel may be used.

The officer quoted above is strongly of the opinion that aeroplanes can be used with success in the Somali hinterland, where the vegetation consists chiefly of short scrub. He recommends machines with long skids which will not turn over easily if caught in bushes on landing, and he also recommends those which will land slowly. They should also be able to get up with a very short run. Sopwiths, the latest 80-h.p. Avros, Maurice Farman's, and the latest Bristols appear to be indicated. One hopes the pilots will not forget to fit quick-release slipping gears to their machines; they may mean all the difference between getting safely away and turning over in the scrub and being massacred, if forced to land in hostile country for a small adjustment.

One hopes that it will be found possible to use aircraft, and that their use will be attended with success without undue loss to the Naval Air Service.

* * *

Owing to the prevalent very high winds, there was less flying at Eastchurch last week than usual. On Monday, Caudron No. 45 (50-h.p. Gnome), M. Farman No. 70 (70-h.p. Renault), and H. Farman No. 31 (70-h.p. Gnome) were flown. On Tuesday, Short No. 3 (50-h.p. Gnome) and Bristol No. 24 (80-h.p. Gnome) flew, and Mr. Gordon Bell put a new Short tractor through its acceptance tests. On Wednesday, M. Farman No. 70 was the only machine out. On Thursday, M. Farman No. 70 was again out, and on Friday H. Farman No. 31 and Bristol No. 24 flew; on this day Lieut. Babington, R.N., from the Grain Station, paid a visit to Eastchurch on Short No. 21 (100-h.p. Gnome), returning after a stay of half an hour. There was no flying on Saturday.

* * *

A great deal of work has been done lately at the Yarmouth Naval Air Station, machines being in the air nearly every day, despite the not altogether favourable weather conditions.

On May 26th Lieut. Bone, R.N., with Lieut.-Comdr. Gregory, R.N. (squadron commander in charge of the East Coast group of Air Stations), as passenger, flew one of the new batch of Henri Farman (120-h.p. Gnome) seaplanes from Yarmouth to Calshot, stopping with slight engine trouble and, incidentally, for lunch at Hastings. There was a strong wind blowing from the north, and Lieut. Bone got the machine off the water almost as soon as she was afloat. Calshot was reached after a total of $3\frac{1}{2}$ hours' flying, the speed averaging something in the vicinity of $94\frac{1}{2}$ m.p.h., the total distance being 330 miles.

The return trip was made a couple of days later, and Grain was taken en route. The total flying time for the return journey was $4\frac{1}{2}$ hours. This is the longest seaplane flight as yet made by naval aviators.

On May 27th, 28th, and 29th, Captain Fawcett, R.M.L.I., Lieut. Sitwell, R.N., and Sub-Lieut. Kershaw, R.N.R., were making flights on Maurice Farman No. 69, carrying ratings from the station as passengers.

On May 20th M. Fischer, with Lieut. Kershaw as observer, put the show Henri Farman through her acceptance trials. One gathers that she is not as fast as was expected, although she climbs like—well, like a Henri Farman. M. Fischer put the same machine through "wireless" trials, carrying P.O. Hendry as passenger.

On June 2nd, Lieut. Bone was out on No. 142 demonstrating

before General Maxwell (commanding East Coast Defences), who was paying an unofficial call at the air station. Later the same machine was up doing wireless tests with Telegraphist Eades as passenger. All officers were out on Maurice Farman 69.

On June 3rd, Lieut. Bone, with E.R.A. Dampier, left for Felixstowe on seaplane 142, returning later the same day. The time for the complete journey was 40 mins. Lieut. Hewlett on seaplane 139 (Henri Farman, 120-h.p. Gnome) arrived from Grain, carrying Lieut.-Comdr. Ireland, for wireless duties with aircraft, who had been testing the wireless on the way North. They left again for Grain after tea.

Lieut. Creswell, R.M.L.I., who was killed in the seaplane accident at Calshot, completed his training in seaplane work at this station, being appointed to Calshot in August of last year. He was very much liked here, and great regret is felt. Lieut. Bone attended his funeral, representing Comdr. Gregory and men of the Yarmouth Air Station.

* * *

There has not been much flying at Dundee during the past week. On Thursday afternoon, at 3.30, Capt. Kilner, R.M.L.I., carrying Lieut. Johnstone, R.F.A., on Short No. 75 (100-h.p. Gnome), flew to Monifeith. Capt. Barnby, R.M.L.I., then made a flight on the same machine with Lieut. Boyd, R.G.A., giving a fine display of banking by the Tay Bridge. Capt. Kilner again took over the machine and, along with Private Oldfield, visited Monifeith and then, after circling the "Vulcan," returned to the base.

With Lieut. Johnstone, R.F.A., as passenger, Capt. Barnby made another flight, circling the ferryboat. Engine trouble forced his return to the base. This was soon put right, and Capt. Kilner made the last flight for the day with A.M. Fisher, circling some torpedo-boats in the Tay. There was no more flying during the week.

MILITARY.

The Hon. E. G. Strutt, at the Surveyors' Institution, on June 12th, concluded the taking of evidence in the arbitration between Lord Rendlesham and the War Office as to the price to be paid for 1,249 acres in Suffolk acquired for an aviation station at Orfordness.

A valuation on behalf of the claimant of the land as a flying-ground amounted to £33,620. For the Crown, Mr. William Anker Simmons (Messrs. Simmons and Sons, Henley-on-Thames) estimated the compensation at £6,689.

Brigadier-General D. Henderson, C.B., D.S.O., Director-General of Military Aeronautics, gave evidence as to the suitability of the land for a flying-ground. He said he required a site for the purposes of secret experiments. Apart from an experimental station, he wanted a certain amount of dry land for experimenting with firearms. The advantages of the land at Orfordness were that the public could be kept off it and that the greater part of it was waste land. The pebbly beach had no special advantages for the landing of aeroplanes, and he expected that aeroplanes would descend on the land south of King's Marsh. Barracks could not be built on marshes and would have to be placed on the shingle.

The Arbitrator reserved his award.

One hopes that, as the experiments are to be secret, the Press will treat them as such should any information leak out about them.

* * *

Tactical manoeuvres from the concentration camp of the R.F.C. at Netheravon were carried out on Monday over an area extending south from the camp to Whiteparish Hill, a few miles from Southampton, and including Salisbury and the country inside a 20 miles' radius therefrom.

The aeroplanes, which left the camp about 9 a.m., represented the air scouts of a "Red" army sent from Southampton to watch the march of a "Blue" army supposed to be south-east of Devizes and assumed to have halted on the night of June 14th-15th with its leading columns on the line Shrewton-Durrington. The scheme assumed that this army should continue its advance towards Southampton on Monday. The mechanical transport of the R.F.C. represented the "Blue" army.

THE BRITISH CAUDRON COMPANY, LTD.

(Late the W. H. EWEN AVIATION Co., Ltd.)

British built **CAUDRON** monoplanes, biplanes, hydro-aeroplanes (combined wheels and floats.)

The Flying School, which is one of the most successful in this or any country, will be carried on as usual at The London Aerodrome, Hendon.

THE WORLD'S DURATION RECORD was raised to 16 hours, 28min., 56 secs. by M. Poulet on a **CAUDRON** Biplane on April 26.

Telephone: 50 Kingsbury.

The Aircraft Co., Ltd.

Hold the **SOLE RIGHTS DIRECT**
from the **FARMAN BROTHERS**

for the building of

HENRY & MAURICE FARMAN

Aeroplanes AND Hydro-Aeroplanes.

In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices:
47 VICTORIA STREET, S.W.

CONTRACTORS TO THE
ADMIRALTY & WAR OFFICE.

Dudbridge Iron Works Ltd.

STROUD, GLOS,

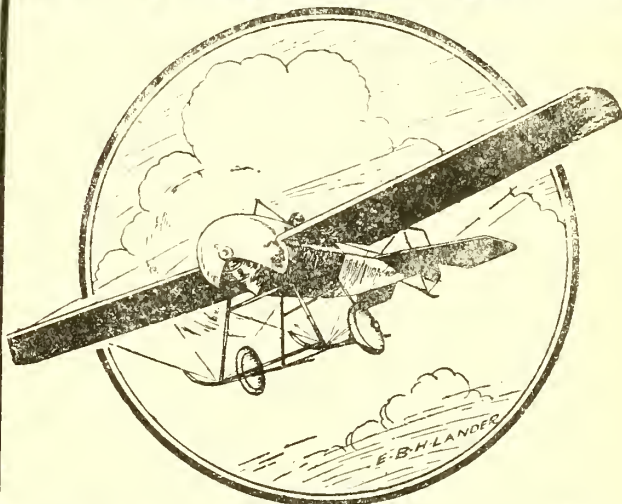
Makers and Sole Concessionaires for the
British Empire for the

Salmson AERO - ENGINES.

Sizes from 80 B.H.P. to 300 B.H.P.
IN SINGLE UNITS.

London Office: 87 Victoria St.,
London, S.W.

Telephone—7026 Vict. Telegraph—Aeroflight, Vic. London.



"BLACKBURN"

Monoplanes, Biplanes, and Hydro-Biplanes,
Propellers and Accessories.

THE BLACKBURN AEROPLANE COMPANY,
BALM ROAD, LEEDS.

Telegrams—"Propellers, Leeds." Phone—2822 Central.

London Offices: H. A. TURRILL, 104, High Holborn, London.
Telephone—4950 and 1791 Holborn.

Starting at 9 a.m. the transport passed southward through Salisbury and by parallel roads. The aeroplanes having reached Southampton turned there and flew over Salisbury, Wilton, Porton, and the Winterbournes, covering the roads to the coast. The observer in one aeroplane was already back over Salisbury when he saw the first of the lorries on Four Mile Hill making for Salisbury. The aircraft caused great excitement in Salisbury. Each machine carried an observer, who noted the positions of the "Blue" columns, and then flew back to report to the "Red" commander. The aircraft were at work for three hours, and the last aeroplane reached camp again just before 1 p.m. Major-General Hubert Hamilton, commanding the 3rd Division, and his chief of staff, Colonel Boileau, were present during the manoeuvres.

FRANCE.

On the evening of June 8th the new escadrille of six armoured Dorand biplanes flew from Issy to Reims without incident. Among the pilots were Corporals of Reserve, Brindejone des Moulinais and Gasnier.

On June 10th M. Brindejone des Moulinais had a very narrow escape at Reims. While flying one of the new Dorand armoured biplanes at a low altitude, he flew straight at another machine without seeing it till it was but a few yards away. M. Brindejone banked the machine hard to the left, and the pilot of the other machine elevated hard. The collision was averted, but M. Brindejone's wing-tip touched the ground and the machine overturned. To everybody's relief, M. Brindejone emerged from the wreck uninjured.

On the same day, Sergeant Grasset capsized a similar machine at Troyes, damaging the chassis and propeller.

On June 10th M. Brindejone des Moulinais flew from Reims to rejoin the escadrille of Dorand biplanes at Chalons on his repaired machine, having flown 600 kms. via Sedan, Verdun, and Troyes. On his arrival the whole escadrille flew to Villacoublay, a distance of 800 kms. The escadrille is to fly on to Dijon this week for open-air camping tests.

These Dorand biplanes are built by the Voisin Frères to the design of Captain Dorand, one of the chief technical officers of the French aeronautical service.

On June 9th the Maurice Farman escadrille stationed at Verdun flew to the military camp at Sissonne in very bad weather without incident. The pilots of the escadrille will take part in firing exercises during the coming month.

On May 7th Adjudant Boisière, who sustained severe injuries in an aeroplane smash on April 27th, died after terrible suffering.

On June 11th M. Bill tested five Henri Farman biplanes (80-h.p. Gnômes) before Capt. Destouches' commission. In each case the pilot climbed to 11,000 metres and then descended with motor stopped.

On June 11th M. Malard made the preliminary tests of a Nieuport seaplane (100-h.p. monosoupape Gnome) at Meulan, and flew for some time round the neighbourhood. The machine is destined for the British Navy.

On June 12th Lieut. de Briery, of the centre at Reims, was forced to land through engine trouble. He turned his machine over and completely demolished it, but escaped with bruises and a dislocated shoulder.

On June 13th Brigadier Blot, attached to Dijon, was flying into the aerodrome at Toul, with Sapper Cheveau as passenger, when he flew over a row of trees and his machine capsized, probably through a down gust. Blot was killed and Cheveau was dragged from under the motor with broken legs, internal injuries, and a fractured spine. His condition is desperate.

French Northern Africa.

On June 7th Lieut. Jolain, of the escadrille in Tunis, started to fly from Sfax to Gabis. He was hindered by a strong wind, and his petrol gave out, forcing him to land on one of the Knais Islands. The machine was somewhat damaged. The aviator and his mechanic were rescued by Arab fishermen.

On June 10th Lieuts. Battini and Cheutin and Quartermaster Benoit, each carrying a passenger, flew from Gélyville to Kreider, where they took train back to Tunis, the bad weather forbidding flying.

GERMANY.

The three German officers who flew from Vienna to Buda Pesth have been giving exhibitions on the Rakocsy ground with Hungarian officers as passengers, and have been fêted by the inhabitants. On June 5th they continued their journey to Prague.

On June 4th Lieut. Hempel, also piloting an Aviatik, landed at Vienna with Lieut. Schnizing. Starting from Breslau at 7.50 a.m., they reached Vienna in 3 hrs. 40 mins. Lieut. Wencher, of the 10th Lancers, returned to Ulm by air from Buda Pesth and Prague on the 8th inst., and after a short interval left for Munich; the others also left for home, but Lieut. von Freyberg's biplane came to grief in landing near Pilsen and continued by rail.

The army airship "Ersatz Z I." was wrecked on June 14th at Diedenhofen, close to the French frontier. She had left Cologne in the morning for Metz. The pilot altered his course to the north-west to avoid a thunderstorm, and then flew very high in order to get above the clouds. This meant loss of gas, and when the airship ran into rain and increased her weight, an immediate landing became necessary. She came down close to the Moselle. The stern struck the ground heavily and the framework crumpled in front of aft gondola. Happily there was no loss of life, but a lieutenant injured his head. Airship wrecks are now regarded with equanimity in Germany, and do not occupy much space in the Press.

On June 11th military Zeppelin No. VII. flew from Frankfurt late in the evening, and after eight hours in the air, during which she passed over Wurtemberg, returned safely to her shed.

RUSSIA.

M. Janoir is busy at Moscow testing Deperdussin's ordered by the Russian army. Colonel Kvatinisky is superintending the tests.

BELGIUM.

The big demonstration of military aviation which had been arranged to take place at Spa on June 7th was spoiled by a deluge of rain. At 4 o'clock Lieut. Tapperoge made a flight of ten minutes' duration in the fog which covered the aerodrome, after which he landed on a wooden shed, deteriorating his machine. Only a hundred spectators were present.

On June 10th Lieuts. Jamotte and Jacquet, of the Namur escadrille, flew from Spa to Namur in an hour and ten minutes, Lieut. Jacques arriving at a height of 10,000 feet.

Lieut. Tapperoge, who landed in a wood at Malchamps, was compelled to return by train. Lieut. Saumoy, chief of the escadrille, is ill, and Lieut. Tapperoge will fly his machine in place of his own damaged monoplane.

During the three days of June 10th, 11th, and 12th, Lieuts. Demanet, Hagemans, Debueger, Leidel, Legros, and Massaux made 26 reconnaissance flights without accident in the course of the manoeuvres of the 3rd Division at Beverloo.

DENMARK.

Capt. Roald Amundsen, the Antarctic explorer, took his aviator's certificate on June 11th at the army flying-ground at Gardermoen, passing in an excellent manner. Earlier, Capt. Amundsen had a narrow escape. He was a passenger with Capt. Sem Jacobsen, one of the best military aviators, when the motor failed and the aeroplane was dashed to pieces in a bad landing. Everyone thought Capt. Jacobsen and his passenger were killed, but when they were extricated from the wreck they were unhurt.

URUGUAY.

Lieut. Frigerio, of the Uruguayan army, is on his way to Europe with powers to buy the matériel for a nucleus flying corps, including for school work a 24-h.p. motor, a 24-35-h.p. monoplane, a 30-h.p. monoplane, and a 50-h.p. biplane; and for the escadrille, two 50-h.p. single-seat machines, three 80-h.p. two-seater machines, two 2½-h.p. motor-cycles, two large transport wagons to carry portable hangars, wireless, flares, etc., two 30-h.p. automobiles, one field hangar, and five aeroplane trolleys. A determined effort seems to be on foot in the Republic to acquire an efficient, if small, flying corps.

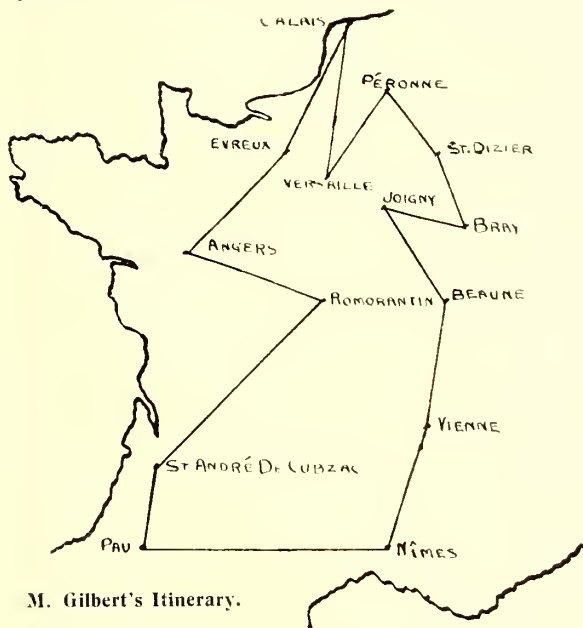
Foreign Notes. France.

On June 8th and 9th M. Gilbert made a magnificent attempt on the Coupe Michelin. Starting on Monday of last week at dawn (3.1 a.m.) from Villacoublay, near Versailles, on a Morane-Saulnier monoplane (80-h.p. Le Rhone motor and Integral propeller), M. Gilbert flew via Péronne, Reims, Saint-Dizier, Bray, Joigny, the official stopping places, to Vienne, where he arrived at 12.50 p.m. After lunch he flew to Nîmes and then in the direction of Pau, where he intended to pass the night, but wind brought him down at Mirande at 8.45 p.m., having covered 1,400 kms. (850 miles) in the day. Starting next morning at 3.15, the indefatigable aviator safely reached Pau at 4 a.m., after which he flew without incident to the remaining compulsory alighting places at St.-André-de-Cubzac, Romorantin, Angers, Evreux and Calais, finally reaching Villacoublay at 6.37 p.m., having covered a distance of 3,000 kms. in 39 hrs. 35 mins., 11½ hours of which were spent on the ground. His times were as follows:—

Villacoublay	0 kms.	3 h. 1 m. 20 secs.
Péronne	160 kms.	4 h. 15 m.
Reims	120 kms.	5 h. 20 m.
Saint-Dizier	110 kms.	6 h. 10 m.
Bray	130 kms.	7 h. 30 m.
Joigny	180 kms.	9 h. 40 m.
Beaune	160 kms.	11 h. 10 m.
Vienne	180 kms.	12 h. 50 m.
Nîmes	190 kms.	15 h. 40 m.
Mirande	300 kms.	Unrecorded officially
Pau	180 kms.	4 h.
St-André-de-Cubzac	200 kms.	6 h. 50 m.
Romorantin	310 kms.	9 h. 30 m.
Angers	190 kms.	11 h. 30 m.
Evreux	210 kms.	13 h. 15 m.
Calais	230 kms.	15 h. 50 m.
Villacoublay	250 kms.	18 h. 37 m. 12 secs

Total 3,000 kms. (1,875 miles).

The speed over the 1,875 miles course averaged about 67 m.p.h.



M. Gilbert's Itinerary.

The second series of tests in connection with the Security Competition took place at Buc on Thursday, June 11th. The tests exacted do not appear to have been very difficult, consisting merely of a couple of circular flights and landings "en vol plané."

The following competitors appeared:—M. Molla on a R.E.P. with a low centre of gravity and self-warping wings made the required tests with success; Mr. Watson, a Scottish

inventor, exhibited a one-and-a-half plane, the haff being on top and capable of rocking laterally. It is said that the usual pilot of this machine was not present and that a pupil who was not capable of carrying out the tests was in charge, and that he failed "to describe the trajectories inscribed in the programme."

Capt. Etévé produced a Maurice Farman fitted with an automatic stabiliser, which is controlled in part by inertia and partly by an air-speed meter. He successfully completed the required tests.

M. Monge showed a "parasol" whose wings are pivoted about the front spar and are held at the rear spar by some form of elastic mounting. The wings have a large dihedral and are also pivoted on a vertical axis, and are similarly spring held at right angles to the longitudinal axis. This machine also appears to have flown as required.

A machine denominated "Balassanian de Manansac," also of the quaintly articulated wing tribe, failed to fly owing to some damage occurring to the wheel base.

M. de la Celle showed a Deperdussin monoplane fitted with an air pressure elevator control, which was piloted by M. Durafour, during which he is suspected of having, on one or two occasions, let go the controls—a suspicion not apparently attached to any of the other machines.

To wind up, M. Juvigny showed a canard type machine, which was prevented from flying by certain engine troubles.

One day was marred by two accidents, M. Pelletier reducing to matchwood an antique biplane on which he was to exhibit a parachute, without injury to himself, and M. le Bourhis on a Blériot failed to straighten out from a spiral and injured himself somewhat.

The following amusing account of the "Concours de Sécurité" (!) has been sent by a friend of THE AEROPLANE who watched the performance:—"It trotted out the most awful collection of old rat-traps ever seen. Poor Pelletier had an appalling old Goupy which had broken in halves taxying two days before, and on this occasion he tried to fly with the wind and landed anyhow after one long hop just before lunch. After lunch he tried to rise against the wind and lifted well, when the thing just collapsed in mid-air. Fortunately he was absolutely unhurt, and more fortunately still the Committee had forbidden the use of live passengers or parachuters, otherwise (he has done it four times) his wife would have been sitting under the fuselage with the parachute.

"Young le Bourhis' accident was probably the result of doing 'stunts' too low down. He tried a steeply banked series of spirals, never realising till too late how much he was dropping. Then too late he straightened up, and at the last moment, to minimise the smash, switched off. I am afraid he is very badly injured and fear for internal (chest) injuries. Bad luck for the Maison Blériot, as when the Committee met before the weather was so awful only two machines flew to Chartres, the looper and a Caudron. Le Bourhis looped in a gale, being his fourth attempt only at looping. Thursday's flight was only in the nature of a 'demonstration.' All le Bourhis' controls were intact.

"It is really pathetic to hear these inventors of freak machines and parachutes talk. Poor Watson's apparatus is awful and works by rocking half a plane on top of a weird monoplane. No rudder at all. He actually hoped for a market for it in England, because it was so 'simple,' having only two movements! The parachute of Baron Od-Kolek opens with a gun explosion. Od-Kolek is the inventor of the Hotchkiss Mitrailleur. Moreau's 'aerostable' is interesting, but only just lifts, and he handles it well. It cannot glide for long, and he must land with his motor.

"The Comité seems to be a collection of foolish old men in their second childhood and cannot be congratulated in any way.

"Poor le Bourhis is an old parachute man and dropped with a Bournet parachute here some time ago. He was a very quiet and nice fellow, but came on much too quickly and had no experience. He looped first some three weeks ago and has only flown on a Gnome for six weeks. Védrines has much improved, and I must say is always ready to help anyone, amateur or professional. His manners, too, are much better,

though, of course, he is an 'apache' and must remain so. He has been trying out some new types with much success."

On June 10th the undefeatable M. Garaix, on the Paul Schmidt biplane (160-h.p. Le Rhone, Integral propeller), beat 22 world's records at Chartres, consisting of 12 records for speed, distance and duration with five passengers, and 10 records for speed with four passengers, as follows:—

Speed (Four Passengers).—10 kms., 5 mins. 32 2-5 secs.; 20 kms., 11 mins. 5 2-5 secs.; 30 kms., 16 mins. 39 2-5 secs.; 40 kms., 22 mins. 14 secs.; 50 kms., 27 mins. 47 2-5 secs.; 100 kms., 56 mins. 20 secs.; 150 kms., 1 hr. 24 mins. 11 1-5 secs. Greatest speed, 108.4 k.p.h.

Distance (with Five Passengers).—Quarter of an hour, 20 kms.; $\frac{1}{2}$ hr., 50 kms.; 1 hr., 106 kms. 168.

Distance (five passengers), 150 kms.

Duration (five passengers), 1 hr. 24 mins. 11 secs.

This brings M. Garaix's list of records to 41! The total weight of pilot, five passengers and fuel was 608 kgs., or 1337.6 lbs.

On June 9th M. Eugène Renaux, carrying a passenger on a Maurice Farman biplane (100-h.p. Renault motor and Integral propeller) flew round the marked course at Etampes and beat the World's Speed Records from 250 kms. to 400 kms. These have been held by M. Guillaux since February 11th, 1913. M. Renaux also set up a record for 500 kms., previously unrecorded. The following are the figures.

Distance.	M. Renaux.	M. Guillaux.
250 kms. ...	2 h. 21 m. 56 s. ...	2 h. 34 m. 28 s. ...
300 kms. ...	2 h. 50 m. 28 s. ...	3 h. 4 m. 5 s. ...
350 kms. ...	3 h. 18 m. 44 s. ...	3 h. 34 m. 46 s. ...
400 kms. ...	3 h. 47 m. 17 s. ...	4 h. 4 m. 4 s. ...
450 kms. ...	4 h. 15 m. 29 s. ...	
500 kms. ...	4 h. 43 m. 16 s. ...	

On June 10th the First Chamber of the Civil Tribunal of the Seine awarded a M. Heurtebise damages against MM. Esnault-Pelterie, Farman and Borel to the extent of £40, £40, and £20 respectively for trespass by their pupils over his land. The Court held that a landowner held rights to the height of the tops of any trees and buildings he possessed, but that the air above that was free to anyone. Articles 552 and 1,382 of the Civil Code were cited in support of this finding.

On June 11th, MM. Gilbert and Garros flew from Villacoublay to Elbeuf on a Morane-Parasol for lunch, returning later in the day.

On June 11th, M. Moreau flew his "aerostable" from Melun to Chartres, where he repaired his chassis, which had been damaged on landing. Later in the day he flew safely back.

On June 11th, M. Malard flew from Meulan-les-Mureaux to Argenteuil on a new Nieuport seaplane, 100-h.p. monosoupape Gnome. He carried M. Chasseri as passenger and made the journey in 55 minutes in spite of a thick fog, arriving in time for lunch at Maisons-Laffitte. They returned in the afternoon at a height of 2,200 metres in less than half an hour.

On June 11th, Lieut. Lugin, having learned to fly at the Farman school at Etampes, flew via Dijon to Basle in Switzerland, carrying his mechanic as passenger.

On Sunday, June 14th an aviation fête was held at Juvisy in which an extraordinary number of first-class pilots took part. Among the aviators were MM. Garros, Gilbert, Brindejone, Marc Pourpe, Chevillard, Bill, Prévost, Molla, Espanet, Pequet, Gaubert, and Champel. "Monoplanists and biplanists executed a mad sarabande which words are powerless to depict, and was during more than three hours an untroubling orgy of looping, etc." Miss Trehawke Davis flew as passenger with M. Brindejone.

Lieut. Trygve Gran, who took part in the Scott Antarctic expedition and who last week joined the ranks of the loopers at Buc, was formerly a pupil of the Hall School of Flying at Hendon.

Mr. Oswald Watt continues to fly his 60-h.p. Blériot at Buc. **Germany.**

On June 5th the final stage of the "Three-Corner Flight" was held, which took the competitors from Johannisthal to Leipzig, Dresden, and back to Berlin. The weather was gusty and the pilots were forced to start from the east edge of the ground, and not from the usual spot. Among the spectators

was H.R.H. Princess Frederick Leopold, who had come to witness the start of the monoplane built by her son, Prince Frederick Siegmund and piloted by Stiefvater. Owing to engine trouble, the machine returned twice to the ground and finally desisted. Flying with the wind at their back, the 26 aviators reached Leipzig within an hour, Schüler and Janisch first. After the compulsory landing at Dresden, rough weather was encountered and only fourteen returned to Johannisthal before the control closed. Schüler (150-h.p. D.F.W.) was first, followed by Boehm (100-h.p. Albatros) and Janisch (80-h.p. L.V.G. mono). Eight others arrived before 9 p.m., only 4 being absentees. There was considerable dissatisfaction at the late start from Johannisthal, 4 p.m. An earlier start would have permitted all the men to have returned within the time limit. Kiessling arrived at Johannisthal at 11 p.m.; he had been forced to land 8 miles from the finish to replenish, and Reiterer and Hoehudorf arrived in the early hours on June 6th.

According to regulations, all the aviators completing the journey within the time limit might start on June 6th for Leipzig, and 11 men did so. Unfortunately, Langer broke his propeller half way, but wiring to Leipzig one of the pilots flew to the spot with a mechanic and a new propeller.

The committee has published its decisions, and the following list shows the principal winners and winnings, including the prizes for the local contests at Berlin, Dresden, and Leipzig:—

(1) Max Schüler (D.F.W. biplane—150-h.p. Benz), 21 hrs. 25 mins. 12 secs.; 1,274 kms.; 14,588 marks. (2) Janisch (80-h.p. L.V.G. mono), 24 hrs. 52 mins. 51 secs.; 1,137 kms.; 6,743 marks (the majority of the sum being formula prizes). (3) M. Koenig (100-h.p. Torpedo mono), 7 hrs. 33 mins. 20 secs.; 909 kms.; 6,536 marks. (4) B. Langer (100-h.p. Albatros), 22 hrs. 25 secs.; 1,274 kms.; 5,104 marks. (5) Krieger (150-h.p. Krieger mono), 23 hrs. 26 mins. 27 secs.; 1,274 kms.; 3,365 marks. (6) Von Lössl (100-h.p. Albatros), 24 hrs. 3 mins. 4 secs.; 1,274 kms.; 3,019 marks. Then follow the other competitors down to Hanuschke, who closes the list. Where not specially notified, the machines are biplanes.

It is reported from Berlin that on Sunday, June 14th, an aeroplane standing on the ground with its engine running broke away before the pilot could take his seat, and flew over Cologne for 15 mins. before coming down of its own accord. The propeller was smashed, but otherwise there was very little damage. This performance strikes one as indicating a degree of inherent stability in German aeroplanes.

On June 4th Karl Ingold (Aviatik biplane) flew from Munich to Vienna-Aspern in 3 hours.

Germany has another looper in Jahn, who has been looping at Bork on a Grade monoplane.

The advertisements in some of the German papers afford interesting reading. For instance, the following: "First-class amateur aviator (world's record-holder) with first-class machines seeks passenger for big cross-country flights and competitions (abroad as well); must be young sportsman, to take over the net expenses in so far as same are not covered by prizes. Only serious, energetic sportsmen of assured financial position need apply. If desired, pilot instruction." Surely this species of amateur would delight the heart of the Amateur Athletic Association.

The Convention of Aviation Manufacturers meeting in Berlin on June 8th decided to postpone the speed contest fixed for the late autumn until the spring of next year, because the industry at present is too busy to prepare for the event, which was primarily a competition for light machines. Also, the War Office propose to hold flying contests in November, and it is not desired that the events should clash.

Great events are preparing in Germany to wind up the unprecedented sporting activity of this year. The Society of German Motor Vehicle Manufacturers, with the Imperial Automobile and Aero Clubs, have decided to arrange an International Aero Show in Berlin at the beginning of November, in the new exhibition halls on the Kaiserdamm. An executive has been formed, consisting of Dr. Sperling, Director Tischbein, Capt. Hilmers, and Capt. von Zawatzky (navy), Messrs. E. Rumpler, Wolf, and Wiener. The committee itself will be nominated later.

The German industry will be represented to its fullest extent

ACCLES & POLLOCK, LIMITED.

ALL SIZES, SECTIONS & GAUGES
OF **STEEL TUBE**
FOR AEROPLANES.
ONE QUALITY—THE BEST

OLDBURY, BIRMINGHAM. Send for 25" X 20" Chart of Full-Size Sections.—Post Free
TUBE MANIPULATION & PRESSWORK. OUR SPECIALITY.

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works: **BROOKLANDS AERODROME, WEYBRIDGE, SURREY.**

SPECIAL INCLUSIVE TERMS FOR TUITION.

NORBERT CHEREAU, General Manager.

Telephone: Byfleet 190.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts
should be made.

For Great Britain and the Oversea Dominions:

THE GNÔME ENGINE COMPANY, 47. VICTORIA STREET, S.W.

CELLON

DOPES 9 and 10 Make the FABRIC FIREPROOF

CELLON, LTD., 17, OLD BROAD STREET, E.C. Telegrams: "AJAWB LONDON." Telephone: 5359 London Wall.

THE AVRO SAFETY BELT

The Perfect Safeguard for Aviators.

The Strongest Belt. The Quickest Release.

Scientifically made by practical men.

42/- THOROUGHLY TESTED. Only one quality—THE BEST. 42/-

Write for Belt, enclosing cash as above to:

A. V. ROE & CO. LTD.

Clifton Street, Miles Platting, MANCHESTER

Telegrams: "TRIPLANE, MANCHESTER" Telephone: 337 FAIRSWORTH

EVERYTHING FOR AVIATION & AVIATORS
"THE LATEST & THE BEST."

Booking

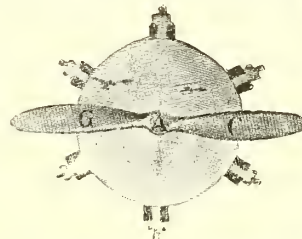
and

Office for

Exhibition

Passenger

Flights.



GENERAL AVIATION CONTRACTORS, Ltd.,

Phone: 280 Gervard.

30, Regent St., Piccadilly, S.W.

Wire: Santochimo, London

and at Milan.

Cables: Aeros, Milan.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

and a large number of foreign exhibits is expected. One wonders whether any British firms will have the pluck to show, on the chance of getting orders, not from Germany, but from the minor European States whose representatives will be there.

Austria.

The Vienna-Aspern meeting, commencing on June 21st, has attracted thirty entries, eleven being Austrian, ten French, and eight German, one British, one Russian, and one Hungarian, as follows:—

Austria—Lieut. Banfield (M.L.G. bi.), Frau Lilly Steinschneider, Sparmann, and Kouschel (M.L.G. monos), Warchalowski, Widmer and Wittmann (Lohner bi.), Kornfeil (a flapping wing machine), Cihak (Cihak mono), Weiser (Weiser bi. and Parasol mono). England—H. Busteed (Bristol bi.). France—Chevallard (Farman bi.), Blériot (two monos, pilots to be nominated), Bathiat (Bathiat-Sanchez mono), Poulet (two Caudron bi.), Audemars (Morane mono), Gilbert (Deperdussin and Morane monos), Prevost (Deperdussin mono), Chanteloup (two Caudron bi.s), Bielovucic (Ponnier and Morane monos). Germany—Ingold, S. Stoeffler and Amerigo (Aviatik bi.), Hirth (Albatros bi.), Schulz (A.F.G. mono), Stiploschek (Jeannin mono), Von Loessl (Albatros bi.), Pentz (not specified). Russia—Slaworossow (Gabardini mono). Hungary—Schüler (two Lloyd bi.s).

Italy.

Since my last this land has been in the grip of the strike curse. Little news is, therefore, to hand as to actual flights if I except some looping in quiet spots by De Dominicis and Manissero. I learn, however, that the new aerodrome near Novi, a civilian enterprise, is getting into shape. It will form the headquarters of the S.I.A.M.

It is hoped, on the best authority, that a short waterplane meeting may be possible on Lake Como in September after the Verona circuit. Some of the best-known foreign pilots are mentioned as likely to enter for it.

Further details of the two-cycle P.O. rotary are now mine to disseminate. The example shown at Turin was a six-cylinder 112 by 130, but any number of cylinders may be employed, as it is a two-stroke. The chief peculiarities, however, of the P.O. engine consist in its using a fan for forcing the mixture into the crankcase via the hollow crankshaft, and a pump for transferring the petrol from the tank into a small receptacle directly above the engine and fitted with a pressure gauge and automatic release valve, whence it is sprayed into the air aspired by the aforesaid fan and forced with it into the crank case. Of course, the spirit from the release valve returns to the main tank.

The feeding of gas to the engine would seem assured under any conditions and the system is claimed to be economical. I gather that the throttle control acts directly on the sprayer, which is variable in size. The fan is gear-driven and gas is led to the cylinder as in normal two-stroke practice. The ports, however, seem to me unusually large. I have often mentioned the P.O. motor under the name Garuffa, that of its inventor, who has been working at it for several years and now seems to have made a promising job of it. The weight per horse-power in the first over-strong engines comes out at 1½ kgs. (3½ lbs.), but this could be much reduced. 70 h.p. is obtained at 1,000 revolutions.—T. S. HARVEY.

The Bossi flying boat which is under construction at Milan and is intended to enter for the Atlantic flight has certain interesting features. The machine is a 75 ft. span biplane boat, the fore part of which contains the two pilots, mechanic, tanks and motor, and is entirely closed in. A 300-h.p. 9-cylinder Salmson motor is fitted, and a speed of 118 kms. (70 miles) per hour is expected with full load, and a speed of 135 kms. (82 miles) per hour when light. The weight of the machine empty is 1,125 kgs. (2,900 lbs.). The motor drives two propellers mounted on the rear interplane struts, through shafts and differential gear. A wireless outfit will also be installed in the cabin. Although the petrol capacity is sufficient to cover 1,400 miles, it is proposed to make three stops on the way to pick up fuel.

Australia.

M. Gaillaux gave exhibition flights on his Blériot monoplane at Victoria Park, Sydney, on May 2nd and 9th, looping, side

slipping, and flying upside down, to the amazement of the inhabitants. In one flight M. Gaillaux carried away some telephone wires, without damage to his machine.

After the conclusion of the second set of flights, "Captain Penfold," the Bristol pilot, made a balloon ascent from outside the ground and descended unexpectedly in it by parachute.

On May 8th, M. Gaillaux took out a Maurice Farman seaplane which was imported some while back for a Mr. Hordern, and had remained packed for lack of a pilot till M. Gaillaux's arrival. M. Gaillaux made three successful trials over the harbour, carrying a passenger on each occasion.

It is reported that Mr. Stone, an American pilot, was to attempt to fly from Sydney to Melbourne, a distance of about 500 miles. He proposes to seek for gate money en route.

U. S. A.

It is stated that Mr. Orville Wright has given M. Pégoud permission to give exhibition flights in the States in consideration of 20 per cent. of the receipts. We still have something to be thankful for in this country.

Brazil.

Last week Sig. Cattaneo gave an exhibition of looping on a Blériot at Sao Paulo. In the course of one flight he made 35 loops, 28 of them being consecutive.

The King and Mr. Hamel.

The following letter from the King and Queen has been received by Dr. Gustav Hamel, M.D., M.V.O., the father of the late Mr. Gustav Hamel:—

Buckingham Palace, May 27, 1914.

Dear Sir,—The King and Queen fearing that the worst must now be realised as to the fate of your son, desire me to assure you how deeply they feel for you in your sudden and grievous sorrow.

Their Majesties knew your son personally; they had seen him fly on two occasions at Windsor this year, and were struck by the skill, courage, and mastery with which he controlled the aeroplane no less than by his modest and unassuming bearing.

In offering you their heartfelt sympathy their Majesties recognise that in this young, useful life the country loses its most accomplished and experienced aviator.

Believe me, dear Sir, yours very truly,

(Signed) STAMFORDHAM.

Dr. Hamel says that he had been hoping for the return of his son, and had therefore refrained from publishing the letter, but feels that the public and the many friends of his son are entitled to know of the message, and that it must not be postponed any longer.

Progress in Scotland.

A correspondent writes:—

"The new aerodrome at Montrose is now almost complete, and the place is much superior in every way to the old situation. Each of the three sheds has accommodation for nine B.E.s or five M. Farmans.

"The new seaplane station at Dundee does not strike one as being well situated either strategically or climatically.

"Mr. Hucks is to give an exhibition near Glasgow about the end of June, which will be the first exhibition of its kind yet held up here in Scotland.

"It is rumoured that a certain gentleman was to have given £25,000 to further Scottish aviation in return for a title. As, however, the 'powers that be' insisted on its being given all at once, and he desired the instalment system, the scheme has, unfortunately, fallen through.

"The Peebles Motor Co., Ltd., Edinburgh, have commenced on aeroplane construction. A Caudron type machine was built and has recently been flying well with only 30 h.p.; an original machine is also under construction.

"It is said that Denny's, of Dumbarton, the great ship-building firm, have, with War Office support, been experimenting with helicopters. So far over £30,000 has been spent and some wonderful results obtained.

"It is interesting to note that although Scotland is very behindhand in all matters appertaining to aviation, yet Edinburgh and Glasgow were the only cities outside London holding a regular series of public aviation lectures."

THE
Monk Engineering Co.,
LTD.

High Street, Coventry.

WE ARE MAKERS OF AEROPLANE
ENGINES AND COMPONENTS AND
WE DO HIGH CLASS MACHINING
FOR EXPERIMENTAL AND PRO-
DUCTION WORK.

OUR EXPERIENCE IN FINE
MACHINING IS UNIQUE AND OUR
PLANT UP-TO-DATE.

MAY WE HAVE YOUR ENQUIRIES?

Fit Palmer Cord Tyres

You then have tyres that grip and never slip, that give buoyancy and added speed, lessen driving strains, absorb road shocks, reduce petrol consumption, and keep you free from annoying tyre troubles on the road.

*Whatever your mileage or tonnage,
you can always depend on—*

PALMER
(ORIGINATORS OF THE THREE RIB TRAD.)
CORD TYRE

THE PALMER TYRE, LIMITED,
119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

Phones: 1214 Gerrard [Four lines]. Grams: "Tyricord, Westcent, London."

PARIS: 152, Avenue de Malakoff.—AMSTERDAM: Stadhouders-
skade 91.—GLASGOW: 6, Royal Exchange Sq.—BIRMINGHAM:
Belmont Row.—COVENTRY: St. Mary's Street.—NOTTING-
HAM: Greyfriar Gate.—LEEDS: 54, New Briggate.—
MANCHESTER: 263, Deansgate.



THE
GREAT

AERIAL DERBY

THE SPEED CONTEST AND
THE HANDICAP RACE

WINNERS USED:

'CASTROL'
REGD.
MOTOR OIL

N.B.—THIS IS THE THIRD
SUCCESSIVE YEAR THAT
THE WINNING PILOT HAS
USED CASTROL.

"For the Highway and the Skyway."

C. C. WAKEFIELD & CO.,
WAKEFIELD HOUSE,
CHEAPSIDE, LONDON, E.C.

C.D.C.

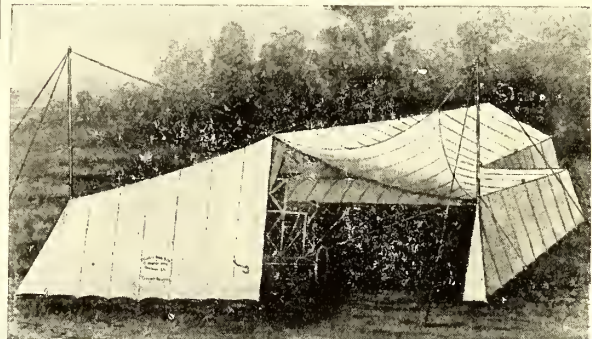
TENTS FOR AEROPLANES

The Cheapest, Lightest and most Portable Shelter for an Aeroplane
is one of PIGGOTT'S PATENT AEROPLANE TENTS.

Pattern No. 3, suitable for a Bleriot Monoplane. Price in water-
proof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back
of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.

Aeroplane Tents on Hire. Large number in Stock.

PIGGOTT BROTHERS & CO., LTD.

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The Trans-Atlantic Flight.

It now appears very doubtful whether an attempt will be made on the trans-Atlantic flight this year. Mr. Mackay Edgar has apparently abandoned the idea of going on with the scheme on his own account, though it is just possible that if some good pilot approached him he might be induced to let him make the attempt.

Work is progressing steadily on the Martinsyde, and it will be finished in good time, but it seems impossible to prepare a proper starting place now that over a month of most valuable time has been lost. It is very much to be regretted that Mr. Edgar is not going on with this scheme, for the honour of British sportsmanship. Though Mr. Hamel's ability as a flier was undoubted, there are many other pilots in this country of much greater stamina and of equal ability as cross-country fliers, any one of whom would have a considerably greater chance of getting through the flight successfully, and, some of them, at any rate, would have no objection to sharing the glory with another pilot for the sake of decreasing the risk of failure through one man collapsing owing to fatigue.

Information from America is to the effect that it is doubtful whether the Curtiss machine will be finished in time to start this year, and that Mr. Porte's health is far from satisfactory, so that he may not be able to start in any case. This report, if true, is most sad, for it puts the only British representative out of the running.

A new entrant is Mr. Paris Singer, who is financing M. Maçon, a French pilot in his private employ, in the construction of a machine, to make the attempt next year. M. Maçon, who, as readers of this paper know, has been flying successfully, but without opportunity for distinguishing himself, for the last two years, should have as good a chance of success as anyone else.

One regrets, however, that Mr. Singer should not have put up either a British or an American pilot. Mr. Singer is reported in the "Daily Mail" as saying, in reply to the question as to why he engaged a Frenchman—"Show me a better man and I will engage him." If the report is true, one would have no difficulty in obliging him with several British pilots with experience of real sea work.



Mr. Handasyde and the rudder of the Trans-Atlantic machine.

Perhaps Mr. Mortimer Singer might be induced to take over Mr. Edgar's machine, and go on with his scheme. One could easily recommend him several pilots who would be glad of the opportunity of making the attempt, and who would have at least as good a chance of success as any of those whose names have been connected with the flight up to the present.

Curtiss Boats for the Seaplane Circuit.

White and Thompson, Ltd., of Bognor, have entered two machines for the "Daily Mail" Seaplane Circuit.

The first machine is a flying-boat of the "Curtiss" type, which is to be fitted with two 90-h.p. Curtiss engines built by the Austin Motor Co., Ltd., of Birmingham. The hull, which is being built by Messrs. Williams, of Littlehampton, is of a much improved type, and is about 28 feet long. The wing span is 52 feet, with a chord of 5 feet 6 inches. The pilot for this machine is Mr. Anthony Loftus Bryan, an officer of the South Irish Horse, who took his certificate on a Blériot in France, and who passed successfully through the last course at the Central Flying School. He is in the Reserve of the R.F.C., and is a skilful but safe and steady flier.

The second machine is of 45 feet span, with 5 feet 6 inches chord, with "Curtiss" type hull, built by Saunders, of Cowes, also of an improved type and about 26 feet in length. The engine for this machine was to have been a British Anzani of 125-h.p., built by the Coventry Ordnance Works, Ltd., but the engine is now at Farnborough in the Engine Competition which may not finish for months, so it is not available. The engine will be decided upon in a few days. The pilot is Captain Ernest Bass, a sportsman of world-wide experience, who took his certificate on a Curtiss boat in America. He has not had great experience of flying, but he possesses plenty of strength and stamina, and has splendid judgment of speed and distance, as those who have seen him handle his 90-h.p. Gobron know, so he should do well.

M. Salmel in Court.

M. Salmel appeared at the police-court at Torpoint, near Devonport, on June 9th, on an adjourned summons issued by the Public Prosecutor alleging offences under the Aerial Navigation Act of 1913, and a subsequent order of the Home Secretary, by coming within the prohibited area at Penlee Point. He was bound over in £50 and ordered to pay 10 gs. costs.

Another summons against M. Salmel for flying near the Admiralty oil tanks at Turnchapel, Plymouth, was dropped.

The Tourist Trophy Race.

The Tourist Trophy Race in the Isle of Man last week was more closely connected with aviation than is usual with motor-car events. In the first place, the winning car, Mr. Kenelm Lee Guinness's Sunbeam, was designed by Mr. Louis Coatalen, the designer of the Sunbeam aero-engines, which are among the most promising of British engines, the only one so far in use, that on Mr. Alcock's Farman, being as reliable and as powerful for its size as anything yet seen, in spite of its light weight. Secondly, the driver of the second Minerva car, the third man in the race, was M. Léon Molon, one of the earliest Blériot pilots, who, at one time, held numerous records with passengers. The fact that all three Minervas went through without trouble should encourage makers of sleeve valve engines to try and produce an aero-engine. Thirdly, Mr. Walter Bentley, whose performance in getting through the 600 miles at nearly 50 miles an hour on the tiny standard type D.F.P. was one of the finest performances in British motor racing, is the son-in-law of Mr. Withers, one of the best-known supporters of the London Aerodrome. Mr. Bentley's car finished sixth out of something over twenty starters, and its speed with an engine of only 70 m.m. bore is astonishing, as the writer knows from experience at Brooklands.

Warning.

The French Aero Club has received a letter from the Ministry of War drawing attention to a danger to aviators and aeronauts which should be known to all British pilots intending to fly the Channel. Big gun practice is being carried on along the coast between Calais and Gravelines every day and in all weathers. Experiments are being made at various ranges, and the trajectories of the projectiles sometimes attain an altitude of 10,000 ft., so that this part of the coast should be treated as a danger zone for all aircraft.

London to Manchester and Back.

In organising the great London-Manchester and back race on June 20th (Saturday next), the management of the London Aerodrome at Hendon has done a real service to aviation in this country, for it should go far to impress on the dull brains of the English people the progress flying has made since the day, only a little over four years ago, when Mr. Grahame-White and M. Paulhan made their fine efforts, and the latter succeeded in getting through to Manchester in the 24 hours. One only wishes our progress had been such that we could put up 30 or 40 starters in our big events, as the Germans do. Fortunately this race passes right through the stupidest and most essentially English part of Great Britain, stopping short just where energy and intelligence begins again with the Celtic and Scandinavian population, so it may do something to wake up the English.

One often wonders what would have happened to aviation in this country if Mr. Gates and Mr. Isaac had not turned their energies to popularising flying. Without the Aerial Derby, the London-Manchester, the London-Paris, and the London-Brighton races, and the constant racing at Hendon, we should indeed be far behind foreign countries, for the Gordon-Bennett and Michelin Cup competitions are not arranged to interest the people.

The entries for the race are as follows:—

No.	Pilot.	Machine	Type	Engine	Nationality
1	F. Bjorklund	Blériot	M...	50 Gnome	Swedish
2	W. Birchenough	M. Farman	B...	70 Renault	British
3	Pilot to be nominated	Grahame-White	B...	50 Gnome	?
4	Pilot to be nominated	H. Farman	B...	80 le Rhone	?
		H. Farman	B...	80 Gnome	French
5	P. Verrier	M. Farman	B...	70 Renault	French
6	Pilot to be nominated	Blériot	M...	80 Gnome	?
7	J. Alcock	M. Farman	B...	100 Sunbeam	British
8	R. Carr	Morane	M...	80 Gnome	British
9	W. L. Brock	Morane	M...	80 Gnome	American
10	L. Noel	Morane	M...	80 Gnome	French
11	R. R. Skene	Martinsyde	M...	120 Austro-Daimler	British
12	Lord Carbery	Bristol	B...	90 Clerget	British
13	F. P. Raynham (or another)	Avro	B...	80 Gnome	British
14	H. G. Hawker	Sopwith	B...	100 Gnome	Australian

The competitors will leave the Hendon Aerodrome at intervals in the order of their handicap times, the limit man starting first at 8 a.m., and the scratch man at about 11.30 a.m., the winners being expected to arrive back at the finishing line at Hendon shortly after 5 p.m. The course is a distance of 322 miles, and competitors, besides stopping one hour at Manchester, must stop 30 mins., both on the outward and the homeward journeys, at the control at Birmingham.

The public will be admitted to the enclosures that are being erected at the Birmingham Ground (the Castle Bromwich Playing Fields), where the first pilot is expected to arrive from Hendon at about 9.30 a.m., and competitors may be expected to be arriving and departing both on the outward and homeward journeys up to about 4.30 p.m.

Public enclosures are being erected at Manchester at the Trafford Park Grounds, where the first arrival may be expected about 11 a.m., and the competitors will be arriving and departing at frequent intervals up to about 3.30 p.m.

The time of arrival of each competitor will be taken at the moment of landing within the boundary of the control and each competitor will be officially restarted from Manchester one hour after alighting, and at Birmingham 30 minutes after alighting.

The distance from the Hendon Aerodrome to Castle Bromwich Playing Fields, Birmingham, the first section of the course, is 91 miles, and the distance thence to the turning point at Manchester is 70 miles. It will be seen, therefore, that the route of the race is through the most thickly populated districts in the country, passing near such important centres as St. Albans, Dunstable, Birmingham, Leamington, Warwick, Walsall, Wolverhampton, Lichfield, Dudley, Sutton Coldfield, Stafford, Uttoxeter, Stoke, Hanley, Burslem and Macclesfield. The following towns are also within easy distance of the controls or the route: Oxford, Watford, Luton, Hemel Hempstead, Banbury, Bedford, Northampton, Stratford-on-Avon, Rugby,



Coventry, Nuneaton, Kidderminster, Tamworth, Bridgnorth, Burton, Derby, Crewe, Buxton, Sheffield, Bolton, Blackburn, Burnley, Halifax, Rochdale, Oldham, Huddersfield, Barnsley, Warrington, Wigan, Liverpool, St. Helen's, and Chorley. Literally, millions of people will have an opportunity of witnessing what will undoubtedly be the greatest air contest that has ever been held in this country.

The prize for the fastest time is the "Daily Mail" Gold Trophy, and £400 presented by the Anglo-American Oil Co. (the Distributors of Pratt's Motor Spirit), in commemoration of the Anglo-American Peace Centenary. This Company has also presented the sum of £350 to be divided among the winners of the handicap.

Special flying displays will be given at the Hendon Aerodrome during the day, and a 12-mile speed contest for the Oddenino Trophy will take place prior to the arrival of the competitors in the London-Manchester Race.

Mr. Grahame-White will give special exhibition and passenger flights on a Henri Farman biplane (So Le Rhone) at Birmingham during the day.

The enclosures open at 7.30 a.m.

Mr. Hamel's Photograph.

Many admirers of Mr. Hamel will doubtless wish to obtain copies of his photograph as a memento. Mr. Birkett, who took the photograph which formed the frontispiece of THE AEROPLANE some weeks ago, can supply copies of this, Mr. Hamel's favourite photograph of himself, at prices which will be found in the advertisement columns at the end of this paper.

The Week's Work.

Weather Report for Week Ending June 14th.

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.
Brooklands ...	Rain	Good	Imposs.	Fair	Fair	Windy	Windy
Calshot ...	Fine	Fine	Fine	Fine	Fine	Fine	Fine
Eastchurch ...	Wind	Windy	Windy	Wind	Windy	Windy	Windy
Hendon ...	Rain	Wind	Gale	Rain	Wind	Gale	Gale
Waterloo (Liverpool) ...	Calm	Stormy	Stormy	Windy	Calm	Wind	Wind

Flying at Hendon.

Flying was spoilt on Thursday by a violent gale, which afterwards turned to rain. M. Louis Noel made a flight on the Maurice Farman with a passenger, and Mr. Reginald Carr was up on the 80-h.p. Blériot for ten minutes.

Glorious weather brought a considerable crowd to the aerodrome on Saturday, but as a set-off against the sunshine and clear sky there was a very strong and gusty wind. Nevertheless, some very fine flying was done by Mr. Carr on "Lizzie," Mr. Noel on the G.-W. Maurice Farman, Mr. Brock on the 80-h.p. Blériot, and M. Verrier, also on a Maurice Farman. Mr. Carr looped the loop several times on the G.-W. tractor biplane, and the other pilots carried many passengers in spite of the wind.

The cross-country race for the cup offered by Signora Manio provided some good sport. Messrs. Carr, Noel, Verrier and Brock started in the order named and flew four times to Bittacy Hill and back. The result was uncertain up to the last minute, but as M. Verrier and Mr. Carr approached the aerodrome Mr. Carr dived steeply, flew underneath the Maurice Farman and so got the inside position for the turns round pylons Nos. 5 and 6. If M. Verrier had dived simultaneously with Mr. Carr he might have saved the races, but as it was he lost by a few yards, and M. Noel was close behind. Mr. Walter Brock was late in starting, but he went round the course in his usual sportsmanlike manner and made remarkably good time.

After the race Signora Manio presented the cup to Mr. Carr, who obviously prefers to face the worst winds to receiving the plaudits of the crowd. However, he thoroughly deserved the ovation. It is noteworthy that at the time of the race the wind was so bad that it was necessary to stay the trophy down to the table in the reserved enclosure to prevent it from being blown over.

Flying was continued till about six o'clock, when the four hard-worked pilots were glad to turn in and rest.

In spite of a 40-mile wind and the stormy weather of the early part of Sunday a fair crowd visited the aerodrome, and M. Louis Noel on the Henri Farman (80-h.p. Le Rhone), Mr. W. L. Brock on the 80-h.p. Blériot, and Mr. W. Birchenough on the Maurice Farman worked hard to entertain them under difficult conditions.

Flying at Brooklands.

On Monday Mr. Sippe went for a test on the Bristol Scout, and afterwards Lord Carbery made a flight with a view to purchasing the machine; he put up a very good show, landing perfectly. The machine then went back to the works to be tuned up for the London-Manchester race. M. Jullerot was out on a Bristol school biplane. Mr. Pixton arrived on a Sopwith Scout. Mr. Skene went up as passenger on the Martinsyde to get used to the machine before flying it himself. Mr. R. H. Barnwell made several loops on the 100-h.p. Sopwith, at one time diving at a speed that must have been approximated to 200 m.p.h.

On Tuesday two Vickers School pupils took their brevets; Mr. J. E. Tennant at 2,000 feet and Mr. J. P. Wilson at 600 feet. Mr. Jack Alcock flew to Shoreham on the Sunbeam-Farman with Mr. Lane as passenger. Mr. Dukinfield-Jones was out on the D.F.W., and afterwards with Mr. Hinshelwood as passenger. Mr. Mahl flew the Standard 80-h.p. Sopwith. Mr. Skene showed what a capable pilot he is by flying the Martinsyde, for the first time, in really excellent style, banking to about 30 degrees and landing excellently. Mr. Frank Goodden arrived from Hendon on the late Mr. Hamel's 80 Morane. M. Jullerot was out on the Bristol school biplane.

Mr. Dukinfield-Jones on the D.F.W., Mr. Mahl on the Standard 80 Sopwith, Mr. Gower on the 50-h.p. Blériot, and Mr. Skene again put up an excellent flight on the Martinsyde. Mr. Frank Goodden did several loops and tailslides on the 80 Morane. Mr. Pixton delivered a Sopwith Scout to Farnborough. Mr. G. H. Eastwood (Bristol School) took his brevet at 1,000 feet, and Capt. Walcott did his first two tests, but did not feel well enough to do his height test. Mr. V. Wilberforce made a good flight on the 45 Anzani-Blériot.

Wednesday was very windy, and the only flight was by Mr. Goodden, who left for Tonbridge with a mechanic on the 80-h.p. Morane.

Thursday was again windy, and no one was out.

On Friday Mr. Mahl was out with a passenger on the Standard Sopwith 80; Mr. Jones was flying the D.F.W., and Mr. Raynham was testing a new 80-h.p. Avro. In the afternoon Mr. Mahl was out on the 80-h.p. Sopwith. Mr. Stutt on the Bristol school biplane, Mr. Skene on the Martinsyde, Mr. Gower on a 50-h.p. Blériot were out. Mr. Raynham was trying "loops" on a Standard 80-h.p. Avro. In the first three attempts the machine refused to turn over on its back, but after a readjustment of the elevator control he made a couple of excellent loops. The De Bolotoff machine was wheeled out of its shed and the engine tested, but a tyre burst, so again it did not reach flying speed.

On Saturday Mr. Raynham delivered an 80-h.p. Avro to Farnborough, and Mr. H. Hawker made a couple of flights on a Sopwith Scout. Mr. Alcock returned from Shoreham.

On Sunday morning Mr. Jones was out on the D.F.W. In the evening Mr. Pixton flew an 80-h.p. Sopwith Scout, Mr. Raynham an 80-h.p. Avro, Mr. Gower a 50-h.p. Blériot, Mr. Jones the D.F.W., Mr. Jack Alcock flew across country with a passenger and near Hurst Park his engine stopped. On trying to start again a dog and the propeller had a slight argument, result dead dog and broken propeller, he therefore had to leave the machine for the night. Mr. R. H. Barnwell was up on the 100-h.p. Sopwith, doing an excellent flight, including something like eleven loops.

Mr. Hucks' Week.

On Wednesday and Thursday, June 10th and 11th, Mr. B. C. Hucks gave exhibitions of flying in connection with the Essex Agricultural Show, at Waltham Abbey. This is a prohibited area, but Mr. Hucks received an exemption from the Home Office and War Office. On Wednesday he gave a fine demonstration, which included looping, upside down flying, banking, spirals, etc. On Thursday the wind and rain rather spoilt the Show, but Mr. Hucks got out his looper at 7 p.m. and made three loops.

On Friday and Saturday, June 12th and 13th, Mr. Hucks gave demonstration at Bedford in ideal weather.

On Thursday, Friday and Saturday of this week he is to give demonstrations at the Sophia Gardens Field, Cardiff.

The Sunbeam Farman at Work.

On Sunday exhibition, passenger, and cross-country flying was done by Mr. Alcock at Brooklands. On Monday more cross-country flying. On Tuesday he flew to Shoreham with Mr. H. Lane as passenger, flying above the clouds without seeing the ground for 15 minutes. On Wednesday he made flights along coast. On Thursday he flew to Worthing with a passenger, had tea, and gave exhibition flights, much to delight of populace, and then back to Shoreham. On Friday he was out in a bad wind, and on Saturday he went to Brighton and back at 3,000 feet, then to Worthing, and finally back to Brooklands with a passenger in stormy weather.

Mr. Blackburn at Blackpool.

Too late for publication last week a wire arrived from Mr. Harold Blackburn saying that he had been flying all the previous week from the South Shore at Blackpool, taking passengers on his Blackburn monoplane, and that his contract to fly there prevented him from competing in the Aerial Derby on the 80 Avro.

Flying at Bognor.

The "Anzani" Curtiss Flying-boat was out for test on Friday, with Mr. Whitehouse as pilot, and Mr. Loftus Bryan as passenger. After flying well for about fifteen minutes, Mr. Whitehouse brought her ashore owing to magneto trouble.

Flying at Eastchurch.

On Monday and Tuesday Mr. Alec Ogilvie made flights on his Wright biplane (40-h.p. N.E.C.).

Flying at Chester.

On Saturday last, M. Salmet made a number of flights at Chester, and took up several passengers on his Blériot.

Sussex County Aero Club.

LAWN TENNIS.—A mixed double American tournament will be held on Saturday, June 27, and every alternate Saturday during the summer. Prizes will be presented to the lady and gentleman who win the most matches. Entrance fee 1s. each player, Hon. Members must pay a ground fee of 6d. Entries to reach the Secretary of the club on the Friday preceding.—HENRY GONNE, Secretary.

There is not much news of flying at Shoreham. On Tuesday, 9th, Mr. Alcock on the Sunbeam-Farman came over from Brooklands. He started to return on Friday but found so much fog inland that he came back, and he and Mr. Pashley with passengers went over to Worthing, landing on the sands. On Sunday there was exhibition flying by Messrs. Pashley and Alcock, the latter leaving for Brooklands in the evening.

School Reports.

Hendon.—AT GRAHAME-WHITE SCHOOL: Instructors: Messrs. Howarth, Birchenough and Barrs. Pupils with instr. on machine: Mr. Courtney (new pupil), Messrs. Wyles, Liu, Shepherd, Palmer and Major Peck. Strts. or rolls alone: Messrs. Robinson, Dunn and Lowe. 8's or circs. alone: Messrs.

IMPORTANT TO AVIATORS.**EAGLE INSURANCE COMPANY,**

ESTABLISHED 1807.

79, Pall Mall, London, S.W.

The directors are now prepared
to quote terms for Life
Insurance including

RISK OF DEATH FROM AVIATION.

For full particulars apply—

F. BERTRAM GALER, B.A., F.I.A.

Manager and Actuary.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

FOR EFFICIENCY
& RELIABILITY IN

AERO-RADIATORS

Send your enquiries to
the well-known radiator
experts

The Motor Radiator Mfg. Co.,

GREET, BIRMINGHAM.

Telegrams: **NERLEAK, BIRMINGHAM.**

Telephone: **455 VICTORIA, BIRMINGHAM.**

Aluminium Castings

OF EVERY DESCRIPTION MADE & REPAIRED.

Chill Castings for Aeroplanes a Speciality

ON ADMIRALTY AND WAR OFFICE LISTS



R. W. COAN

219,
GOSWELL
ROAD,

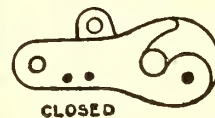
LONDON, E.C.

Telegrams—
Krankases,
Isling,
London.

Telephones—
3846 City
4879 Central.

RELEASE GEARS for AEROPLANES

REG. PATENT NO 17,090-11.



CLOSED



OPEN

SPECIAL STEEL STRAINERS, EYEBOLTS,
BOLTS and NUTS, ETC. ALSO ENGINE HOUS-
INGS, and STEEL TUBE WORK.

Prices and Catalogue Free.

RUBERY, OWEN & CO. DARLASTON,
SOUTH STAFFS
Manufacturers of Aeroplane Accessories.

TEL

The Best Revolution Speed Indicator

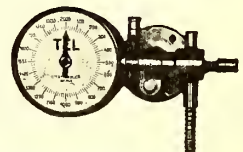
Being mechanically operated possesses
the following advantages—

Over 2000 TEL instruments supplied for use by
the French, Russian, Italian and Spanish Naval
and Military Depts. and the British Admiralty.

THE HASLER CO., 26 Victoria St. Westminster, London, S.W.

Phone Vict. 431

Uniform Dial Graduation
Not affected by changes in
temperature or vibration
Indicates with same accuracy
high and low speeds.



KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Winter, Boyesen, Robinson, Dunn, and Lowe. Machines in use: G.-W. school biplanes.

AT HALL FLYING SCHOOL.—Instructors: Messrs. J. L. Hall, J. Clappen and Virgilio. Pupil with instr. on machine: Mr. A. Charig (6½ mins.). Strts. or rolls alone: Messrs. J. Rose, A. L. Brookes, A. F. Arcier (12 strts each), H. C. G. Allen (5 strts.), and J. Rose (4 strts.). Machines in use: Avro and Caudron biplanes, Deperdussin and Blériot monos. On Friday Mr. Hall to 8,000 ft., descending in 10-min glide.

AT CAUDRON SCHOOL: Pupils having excellent opportunities of flying practice when weather permits. The School is thoroughly equipped and another new school machine has been built. Excellent work is being done.

AT BEATTY SCHOOL: Instructors: Messrs. Baumann and Watts. Pupils with instr on machine: Messrs. MacLachlan (36 mins), Cheung (46), Ruffy (32), Allen (13), Bentley (11), Capt Bass (43), Lts Dalley (136 mins), Browning-Paterson (30), Princess Ludwig of Lowenstein-Wertheim (12 mins). 8's: Mr. Stewart (26 mins). Machines in use: Wrights.

Brooklands.—**AT VICKERS SCHOOL:** Instructors: Messrs. Barnwell, Knight, Elsdon and Webb. Pupils with instr. on machine: Lt. Gillman (2), Messrs. Miller (1), Warrand (5), Klingenstein (3). 8's or circs. alone: Lt. Eberli (1), Messrs. Wilson (2), Miller (6), Parker (3). Certificates taken during week: Lt. Tennant and Mr. J. Wilson. Machines in use: Three school biplanes.

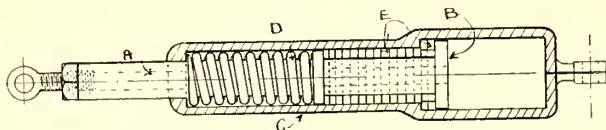
AT BRISTOL SCHOOL: Instructors: Messrs. Jullerot, Merriam, Stutt. Pupils with instr on machine: Lt Nugent (10), Mr. Adamson (10), Lt Moule (2), Mr. Rutledge (6), Mr. Charlesworth (7), Mr. Lucas (9), Lt Britten (1), Lt Ames (2). Strts or rolls alone: Mr. Chambers (1), Mr. Gresley (1). 8's or circs alone: Mr. Chambers (2), Mr. Gresley (3), Lt Richard (2), Capt Walcot (4), Mr. Eastwood (4). Certificates taken: Mr. Eastwood and Capt Walcot on June 9th. Machines in use: Three school biplanes.

Liverpool (Waterloo).—**LIVERPOOL AVIATION SCHOOL:** Instructor: Mr. H. G. Melly. Pupil doing strts. or rolls alone: Mr. J. Osborn-Groves. Machine in use: Blériot (Anzani). On Monday, 8th, Mr. Groves was caught by gust while rolling and turned complete somersault.

A Slack-wire Check.

The accompanying sketch represents a device which should be of some value in connection with aeroplanes. It is an arrangement for automatically taking up slack in wires or cables.

The rod A is fitted at one end with a piston B which fits easily in the large diameter of the casing C. Within the smaller diameter of C is a spiral spring D which always tends to push A and B further up the casing. Between the end of the spring and the piston B are a series of split spring rings E, which, when closed up, fit round A and within C, but when they have passed into the larger part of the bore spring open and prevent a backward motion of A.



If this arrangement is fitted into control cable on an aeroplane and the cable stretches the slack is automatically taken up by the spring, but tautness is positively maintained by the locking action of the spring rings between the shoulder and the piston. By properly proportioning the strength of spring any desired tightness may be maintained in a wire.

By omitting the spring a considerable saving of weight may be effected, and although the automatic taking up of the slack no longer occurs, slack in rudder or elevator wires may be quickly taken up by simply pulling together the two ends of the fitting.

The device seems to have a distinct field in connection with control wires, etc. Mr. D. E. Turner, of 2, King Henry's Road, Hampstead, is the inventor, and would be glad to supply further particulars on application.

Draughtsmen Wanted.

The Editor of THE AEROPLANE knows of several good places open for competent draughtsmen with some experience of aeroplane work for preference, although this is not necessarily essential, except in one case where experience is an absolute necessity. Applicants for these places should write at once to the Editor of THE AEROPLANE.

For Racing Machines.

With so many big races in the offing, and so much increase in the demand for fast aeroplanes, there is likely to be a ready market for the new 100-h.p. monosoupape Gnome engine, which has been performing so well on the Sopwith Scout which won the Schneider Cup. It so happens that a certain British firm with whom the writer is in touch can supply 100-h.p. monosoupapes immediately from stock, so that anyone requiring these engines would do well to communicate with the Editor of this paper.

Integral Again.

M. Renaux, flying a Farman biplane with 100-h.p. Renault motor, and M. Garaix, flying a Schmitt biplane with 160-h.p. Le Rhone motor, who have recently beaten many world's records for speed with and without passengers, both used Integral propellers.

Congratulations.

GATES.—On Friday, June 12th, at Wincanton, Sunny Gardens, Hendon, N., to Mr. and Mrs. Richard T. Gates, a son.

MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

THE proprietor of the patents Nos. 13417 of 1909 and 14414 of 1909 for "Improvements in or relating to Airships" is desirous of entering into arrangements by way of licence and otherwise, on reasonable terms, for the purpose of exploiting the same and ensuring their full development and practical working in this country.—All communications to HASELTINE, LAKE & Co., Chartered Patent Agents and Consulting Engineers, 28, Southampton Buildings, Chancery Lane, London, W.C.

TUITION.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to let. For terms and full particulars apply THE AERODROME, EASTBOURNE.

THE CAUDRON SCHOOL OF FLYING, CAUDRON BIPLANES & MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best-equipped School, enquire what the Caudron pupils are doing.

THE BRITISH CAUDRON CO., LTD.,
London Aerodrome, Hendon.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition on biplanes of up-to-date construction.

THE success of THE GRAHAME-WHITE SCHOOL OF FLYING is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the GRAHAME-WHITE SCHOOL, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

THE SHOREHAM FLYING SCHOOL.—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

PASHLEY BROTHERS,
SHOREHAM AERODROME, SUSSEX.

Tuition for R.A.C. Brevet.

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

Passenger Flights.

HALL FLYING SCHOOL.

HALL FLYING SCHOOL.—TUITION—Flying and Construction—given on
A vro Biplanes.
B leriot Monoplanes.
C audron Biplanes.
D eperdussin Monoplanes.

N.B.—Only tractor machines in use.

PASSENGER FLIGHTS.

Flying exhibitions.—Write at once for full particulars gratis to **HALL AVIATION CO.,** London Aerodrome, N.W.

PROPELLERS.

BLACKBURN PROPELLERS.—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY, Leeds.**

CHAUVIERE'S famous Integral Propellers hold all records; used by all leading aviators. The best.—Sole proprietors for Great Britain and Colonies, **THE INTEGRAL PROPELLER CO., LTD.,** 1B, Elthorne Road, Upper Holloway, N. Telephone: 912 North. Telegrams: "Avirop, Uphole," London.

EMPLOYMENT.

WANTED, several capable propeller carvers; good wages; previous experience and references essential.—**MANN & GRIMMER, Arlington Works, Surbiton.**

THOROUGHLY competent and capable draughtsmen required for aeroplane works; preference given to those having had suitable high-class motor chassis experience and able to calculate stresses.—Apply, stating age and experience, also salary required, to **SHORT BROTHERS, Eastchurch, Sheppey.**

MACHINES.

CAUDRON biplane, 60 h.p. Gnome, practically new; cheap for quick sale; owner going abroad.—**M. Z., Hendon Aerodrome, N.W.**

DUNNE PATENT SAFETY AEROPLANES, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.,** 1, Queen Victoria Street, London. Tel. 834 Bank.

PHOTOGRAPHS.

THE favourite photograph of Mr. Gustav Hamel may be obtained from **F. N. BIRKETT, Photographer, 97, Percy Road, Shepherd's Bush, N.W.,** at the following prices, post free, unmounted:—12 by 10 in., 2s. 2d.; 8 by 6 in., 1s. 6d.; 6 by 4 in., 1s. 2d.—on mentioning **THE AEROPLANE.** Also, at same prices, photographs of the late Phillipe Marty, Robert Slack, and Lee Temple.

GUSTAV HAMEL.—Photographs of Mr. Hamel taken for him in February, with and without his machine. Not snapshots; high-class pictures, 5s. each. Several autographed copies for disposal.—**R. J. MCKENZIE, 1, Cornfield Road, Eastbourne.**

MISCELLANEOUS.

WILLOWS AIRSHIPS.—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD., Hendon Aerodrome.**

HARDWOODS for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three-ply, Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON & SONS, LTD.,** 130, Hackney Road. 'Phone 4770 Wall.

LUNCH, TEA, or SUP at—

"THE AERO RESTAURANT."

(Just outside the gates of the Hendon Aerodrome.)

Pretty Tea-Gardens, with awnings, for fine weather. Glass-sided "Sun-Parlour" for cold weather.

Best of Food, well cooked and neatly served.

Lunch from 1s. 6d.

Tea from 6d.

Trade **MENDINE** Mark.

LIQUID SCOTCH GLUE

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.
MOISTURE PROOF.

Write for Price List and Particulars—

MENDINE CO., 8, Arthur Street, London Bridge, E.C.

MODELS.

T. W. K. CLARKE & CO., HAMPTON WICK, MIDDLESEX.

'Phone: Kingston 869.

CLARKE No. 1. AERO SILK, a New Covering, 1/- per yard.

BENTWOOD PROPELLERS, any hand, 1d. per in. Carved ditto., 2d. per in.

ELASTIC, guaranteed finest **Para Strip,** 1/4 and 10d. per doz. yards.

MODELS from 1/- to 30/-.

Send stamp for Lists.

TRADE SUPPLIED. SPECIAL TERMS TO CLUBS.

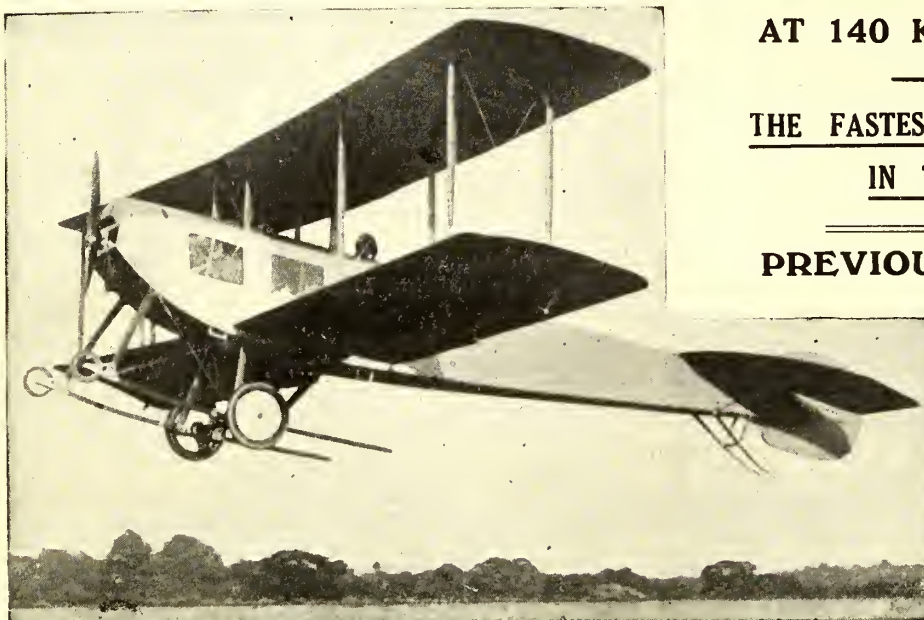
M.S.C. MODEL aeroplanes and accessories. Models from 1s. 6d. to 25s. Send stamp for illustrated catalogue.—**MURRAY, SON & CO.,** 387a, High Road, High Cross, Tottenham, N.

THE LATEST SOPWITH SUCCESS:—

WINNING OF THE SCHNEIDER CUP

AT 140 KMS. PER HOUR.

**THE FASTEST HYDRO-AEROPLANE
IN THE WORLD.**



**PREVIOUS RECORDS on
the preceding type
of SOPWITH
BIPLANE (80 h.p.
Gnome).**

**British Height Record
(Pilot alone) 11,450 ft.**

**British Height Record
(Pilot and 1 Passenger)
12,900 ft.**

**British Height Record
(Pilot and 2 Passen-
gers) .. 10,600 ft.**

**WORLD'S Height
Record (Pilot and 3
Passengers) 8,400 ft.**

**ALSO, British Duration
Record, 8 hrs. 23 mins.
with British A.B.C.
Engine 40 h.p.**

THE SOPWITH AVIATION CO. Ltd.

(Contractors to His Majesty's
Admiralty and War Office.)

Telephone
1777 & 1343 KINGSTON.

Offices and Works : KINGSTON-ON-THAMES.

Telegrams :
"SOPWITH, KINGSTON."

NEXT SAT. JUNE 20th Daily Mail AIR RACE

LONDON-MANCHESTER-LONDON

Hendon to Manchester and back, via Birmingham, in one day (weather permitting)
For the "DAILY MAIL" GOLD TROPHY, and
PRATT'S £750 PRIZE.

(Presented by the Anglo-American Oil Co., Ltd.)

SEE THE START (At Intervals 8 a.m.-11.30 a.m.) AND FINISH (about 5 p.m.)

AT HENDON

Admission, 1s., 2s. 6d., 5s., 10s.
(Children Half-price.)

Motors, 5s. and 10s.
(Includes chauffeur.)

See the arrivals and departures at TRAFFORD PARK, MANCHESTER, (at intervals, 11 a.m. to 3.30 p.m.), and at CASTLE BROMWICH PLAYING FIELDS, BIRMINGHAM (at intervals, 9.30 a.m. to 4.30 p.m.) Admission 1s. and 2s. 6d. (after 2 p.m. Admission 6d. and 1s.). Motors, 2s. 6d. Children Half-price.

SPECIAL FLYING DISPLAYS will be given during the day at the Castle Bromwich Playing Fields, Birmingham, by CLAUDE GRAHAME-WHITE. Passengers will be carried.

Wonderful Air Racing every Thurs. and Sat. from 3 p.m.

TO-DAY, Thur., June 18th. Preliminary tests for
LONDON-MANCHESTER AIR RACE.

SUNDAY, June 21st. ASCOT SUNDAY AT HENDON

Special Displays every Sunday Afternoon.

Admission 6d., 1s., 2/6 Children Half-price. Motors 2/6 (Inc. chauffeur)

London Aerodrome, Hendon, N.W.

Write to Dept. A.
London Aero-
drome Offices 166
Piccadilly, W.,
for a free copy of
the little booklet
entitled "Won-
derful Flying at
Hendon," which
contains numer-
ous illustrations,
a complete list of
fixtures for 1914,
and particulars
of passenger
flights, routes to
Hendon, season
tickets, etc.

"THE AEROPLANE," JUNE 25TH, 1914.

THE AEROPLANE

12
WEEKLY

Edited by C. G. GREY. ("Aero-Amateur")

VOL. VI. [REGISTERED AT THE G.P.O.
AS A NEWSPAPER.]

THURSDAY, JUNE 25, 1914.

No. 26

THE DOUBLE FIRST.



Mr. Walter L. Brock, winner of the first London to Manchester and back race on Saturday last, and of the Aerial Derby on June 6th.

The "Bristol" **Flying Schools**

THE PREMIER SCHOOLS OF THE COUNTRY

TUITION on All Types of Machines.

NO WAITING. ☐ RAPID AND THOROUGH TUITION ENSURED.

WRITE FOR FULL PARTICULARS

THE BRITISH & COLONIAL AEROPLANE CO., Ltd.
FILTON HOUSE, BRISTOL.

THE BEATTY SCHOOL OF FLYING

■ ■ ■ ■ ■ ■ ■ ■

We invite you to come and have a TRIAL LESSON, the charge of which is £2 2s., to be refunded upon joining the School.

Our method of DUAL CONTROL ensures rapid and thorough tuition. Each lesson lasts fifteen minutes and training proceeds in winds up to twenty miles per hour.

**DON'T WASTE TIME WITH ROLLING PRACTICE:
GET INTO THE AIR AT ONCE.**

TUITION FEE, covering all charges on either the biplane or monoplane, £75.

■ ■ ■ ■ ■ ■ ■ ■

The Beatty School of Flying,
London Aerodrome,
Hendon, N.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

THE AEROPLANE

The Editorial and Advertising Offices of "The Aeroplane" are at 166, Piccadilly, W.

Telegraphic Address: AILERON, London. 'Phone: MAYFAIR 5407.

Accounts, and all correspondence relating thereto, should be sent to the Registered Offices of "The Aeroplane and General Publishing Co., Ltd.," Rolls House, Breems Buildings, E.C.

The Editor cannot undertake to return unsolicited manuscripts, whether accompanied by stamps or not, though every endeavour will be made to do so.

"The Aeroplane" is not connected with any other business at the same address, whether associated with Aeronautics or not.

Subscription Rate, post free: Home, 3 months, 1/8; 6 months, 3/3; 12 months, 6/6. Abroad, 3 months 2/9; 6 months, 5/6; 12 months, 11/-.

The Royal Naval Air Service.

Dating from July 1st, a new service is definitely added to the fighting forces of the Crown, for on that date the Royal Naval Air Service comes officially into being.

Hitherto it has been a pious official affectation that the Naval Air Service, as it has called itself and as this paper has called it for the last year or so, was the Naval Wing of the Royal Flying Corps, one and indivisible, as invented by Colonel Seely in his futile dream of a great Third Service, neither Army nor Navy, with a permanent non-party Minister of State (presumably himself) at its head. As soon as this idea was mooted Mr. Whittaker and I proceeded to point out how utterly unworkable this omnium-gatherum of sailors, soldiers, and civilians in a kind of Aero-ultramarine Service was bound to be, and, not for quite the first time in the history of Service aeronautics, we were unsupported at the time and quite right in the end. Before another week has passed the Royal Flying Corps will have become purely a matter for the Army, and the Royal Naval Air Service will have emerged from its present unnatural position and will have come into a separate existence as a new branch of the Navy, the position being more nearly analogous to that of the Royal Marines than anything else.

The change is one eminently satisfactory to all concerned, for it puts every officer of the Royal Naval Air Service, whether sailor, marine, soldier, or civilian on an equal footing in the new service, precedence being only according to rank in that service. This question of precedence has been definitely settled by a new Seniority List arranged purely arbitrarily, but with due regard to the record of each officer, consideration having been given both to his aeronautical experience and to his service in that branch of the Navy to which he had belonged previously.

It is generally known that this sudden and drastic change is in no small measure due to Mr. Winston Spencer Churchill, for it is easy to see in the new regulations the fruits of that keen and practical interest which the First Lord has always taken in naval problems generally, and especially in the progress of the science of aeronautics.

It must be admitted that up to the present air work in the Navy has been too new a thing to admit of the application of firm lines of organisation. Indeed this section of the Royal Navy has been nurtured and guarded through an infancy full of anomalies and difficulties rather by a spirit of loyalty and devotion to a principle on the part of those responsible for its growth than by the disciplined and well defined routine of a fighting force. For the remarkable progress already made the Director of the Air Department, Captain Murray Sueter, C.B., R.N., and his energetic staff at the Admiralty deserve every possible credit, and a nation's thanks—which latter they will not get.

The new scheme is based upon the principle that all classes of officers and men in the Naval Air Service shall enjoy equal facilities in regard to executive command, so that officers and men of the combatant and the non-combatant branches of the Royal Navy, officers and men of the Royal Marines, of the Royal Naval Reserve Forces, those transferred from the Army, and those entered direct from civil life shall all take rank and precedence according to their Naval Air Service grade whilst performing Air Service duties.

A new and eminently wise provision has been made that officers entered from civil life shall go to sea in warships at intervals so that they may learn to consider themselves definitely a part of the naval service and imbibe the naval traditions.

Proper regulations provide for the advancement of naval ratings and those entered from civil life direct so that the former shall not suffer from their periods of sea training. The pay is established on approximately the same rates as those for the Submarine Service, but slightly higher on the whole.

In the early days of this scheme there must be many small difficulties of administration, but the heterogeneous forces existing in the Air service could never have been drawn into a homogeneous whole without such difficulties, and it does appear in fact that a comprehensive basis has been found on which to build up the organisation of this new branch of the Navy.

Obviously in a service of which the officers and men are drawn from several sources and yet are performing identical functions it is impracticable to limit military command to those who enter from what is officially known as the Military Branch of the Royal Navy. If it had been practicable to recruit the necessary officers and men from the active service list as was the case in the Submarine Service, the advantages of a purely naval system might have preponderated, but, so far from these conditions obtaining, the sudden rise of the Air Service has made it essential that a large percentage of its personnel must be entered direct from civil life. This is not because there are not sufficient naval officers ready to volunteer and in all respects suitable for this employment, but because their services cannot be spared from their ordinary duties with the fleet. These points have all been brought forward again and again in this paper, and it is interesting to find how at last they are working out in practice.

It is evident that the institution of this separate branch must make for higher efficiency. A new arm growing up cannot be hampered unduly by ancient customs and restrictions which may not apply to new conditions and may seriously hinder progress in consequence. Yet it is fortunate that the new service has so formidable a bulwark as the written and unwritten laws and the magnificent traditions of the Royal Navy. Still, no thinking person supposes that man's conquest of the air is going to stop at the stage we have now reached, and it is therefore earnestly to be hoped that the Royal Navy will also do its duty in continuing to act as a wise and far-seeing parent, for it is obvious that the Air Service, if properly nurtured, will grow into one of the largest and most powerful branches administered by the Admiralty.

The New Organisation.

To print all the published details of the organisation would take a whole issue of this paper. Even those which relate directly to aeronautics, and excluding purely routine details, will have to be dealt with gradually, but some of the more important points must be mentioned here and now because they show such a radical change from old ideas.

The very first paragraph says, "The Royal Naval Air Service will form part of the Military Branch of the Royal Navy, and the various ranks will be added to the list of officers of

the Military Branch. . . They will not, however, be entitled to assume the charge and command of a ship, unless they belong to one of the existing ranks in the Military Branch, and are expressly authorised to do so by superior authority." That is to say, an engineer, or marine, or a civilian who had reached the grade of a Squadron Commander, ranking as Lieut.-Commander, R.N., would, on board ship in action be under the command of the juniorest sub-Lieutenant, R.N., if the other executive officers went under, that is, in theory. In practice, if he had done any sea service he would probably walk in and take hold.

New Grades.

Two new grades have been introduced, and the relative ranks of the different grades are definitely laid down. The head of the Air Service is the Director of the Air Department, under him comes the new grade of Wing Captain ranking as Captain, R.N.—no one yet holds this rank. Then comes the grade of Wing Commander ranking as Commander, R.N.—there are five such officers—after which come Squadron Commanders. When in command a Squadron Commander ranks with Lieut.-Commander, R.N.—otherwise a 2½-stripe lieutenant.

Squadron Commanders not in command, i.e., doing duty at the Admiralty, or presumably as second in command to a Wing Commander, rank as Lieutenants, R.N., over 4 years' seniority—otherwise 2-stripe lieutenants—but are senior to all Flight Commanders. Further, on attaining 8 years' seniority in the relative rank of Lieutenant, R.N., these officers will rank with Lieutenant-Commanders, R.N.

Flight Commanders rank with Lieutenants, R.N., over 4 years' seniority. Flight Lieutenants, who correspond to Flying Officers in the R.F.C., rank with Lieutenants, R.N. Flight Sub-Lieutenants rank with Sub-Lieutenants, R.N. Warrant Officers, 1st grade, rank with Commissioned Warrant Officers, R.N. Warrant Officers, 2nd grade, rank with Warrant Officers, R.N.

This settling once and for all of relative ranks must prove most comforting to Air Service officers. A man now takes rank according to his air service and not according to what he was before. Thus we find one soldier among the Wing Commanders; one soldier, four marines, and three engineer-lieutenants among the Squadron Commanders; and four soldiers, a marine, a civilian, and two very junior lieutenants, R.N., who, however, have done a great deal of flying, among the Flight Commanders.

Taking this arrangement all round, it must be very comforting to engineers and marines—who are still regarded as inferior beings by some of the old stick-and-string executive officers—and paymasters who could not hitherto take executive commands. It is still more comforting to civilians, for it opens up to men of the right class an honourable career at an age when they are too old to join the Navy in the ordinary

way. Also, young men who cannot afford to become soldiers can join the Royal Naval Air Service with prospects of advancement, and with the certainty that they can live on their pay in a manner befitting their positions in the King's Service.

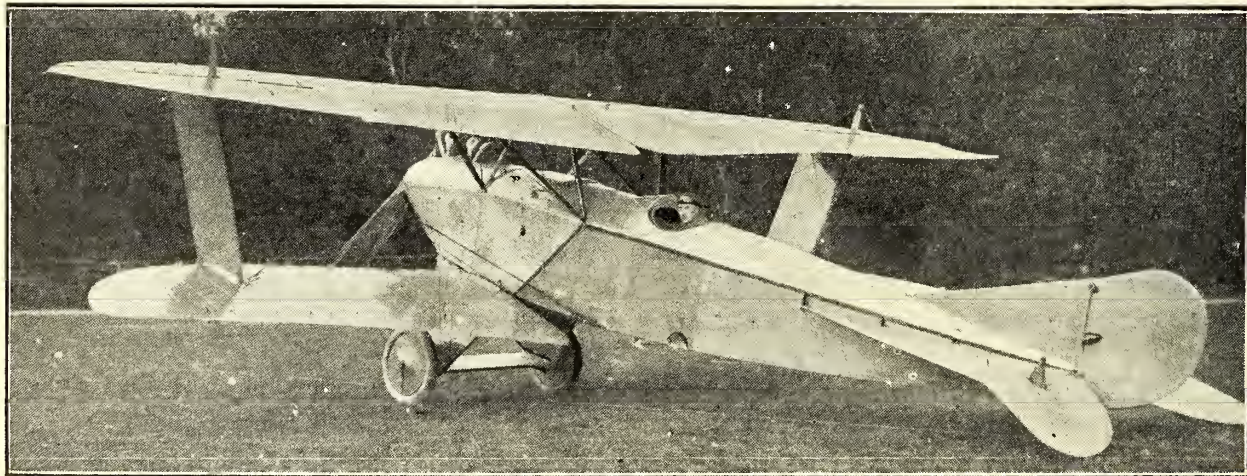
The Regulations state that promotion will be by selection. This is, in theory, the rule throughout the Navy, but, in practice, special promotion is less frequent than in the Army. In the Air Service, however, there is more opportunity for ability and enterprise than in any other branch. Further, it is stated that "Officers entered direct from civil life will hold a position of entire equality in the Royal Naval Air Service in every respect with officers of the Royal Navy or Royal Marines who are of the same grade and seniority. In order to identify them closely with the Royal Navy and for their general instruction they will be embarked in a ship of war for a definite period in each year. Their rate of pay will not be affected during this period except that they will not receive flying pay." In fact, the civilian aviator who has the luck to be selected for the Royal Naval Air Service becomes a *pukka* naval officer, and is not regarded merely as a militiaman, which seems to be the tendency in the R.F.C.

Uniforms.

The distinguishing badge of the R.N.A.S. is an eagle. Naval officers will in future wear their ordinary uniform, with the eagle above the lace on the left sleeve. Naval Officers, other than those formerly of the Military Branch, will wear naval uniform "with the distinctive lace of their relative rank in the Military Branch," plus the eagle, of course. That is the bits of blue or purple or white between the rows of lace disappear and the Flight Lieutenant becomes an executive officer. Marines will wear R.M. uniform, plus the eagle. Civilians will wear the full uniform of the Military Branch of the Navy, but the anchor on buttons, cap badge, epaulettes and sword-belt will be replaced by the eagle.

In the next issue of this paper I propose to go more closely into these Regulations, but I think enough has been said to show that the problems of the Royal Naval Air Service have been tackled in a very businesslike way.

No one can even guess how big the R.N.A.S. is going to be in the future. We can already see as far as seaplanes as big as destroyers carrying equally big crews, and we shall need hundreds of them, as well as thousands of smaller machines, so there is plenty of scope for those who join the Service now. Hitherto, the selection of officers has been excellent, and despite the need for greater numbers the care taken in selection is not likely to be relaxed. In time the Air Service will build up its own customs and traditions. One can only hope that it will continue as well as it has begun. It is already a Service to which any officer may well be proud to belong, and those who have been responsible for its early days deserve the thanks of the British Empire.—C. G. G.



Herr Schüler on the D.F.W. biplane (150-h.p. Benz) on which he won the "Three Cornered Flight" (Berlin, Leipzig, Dresden, Berlin).



LEARN
TO
FLY



AT THE
VICKERS FLYING SCHOOL, Brooklands.



VICKERS LIMITED,

Aviation Department, Vickers House,
Broadway, London, S.W.

CONTRACTORS TO THE ADMIRALTY

SHORT BROTHERS,
AEROPLANE WORKS
AND
FLYING GROUNDS—
EASTCHURCH, ISLE OF SHEPPEY.

Telephone:—9, MINSTER-ON-SEA.

Telegraphic Address:—"FLIGHT, EASTCHURCH."

The Seniority List of the Royal Naval Air Service.

Whilst employed upon the duties of the Royal Naval Air Service, Officers whose names are upon this list rank and take command in the order that their names stand upon the list.

Whilst Officers from the Royal Navy are so employed, their names are specially in *italics* on the list of their rank in the Royal Navy in order to indicate that their naval rank is in abeyance.

The first Royal Naval Air Service Seniority List has been framed on an arbitrary basis. All Officers who may subsequently enter the Royal Naval Air Service will, on being first graded, be placed at the bottom of the list of Flight Lieutenants, with the exception that if any Officers are entered for some particular duty a temporary grade of a higher nature may be given to them to give them the necessary authority and precedence.

Promotion from grade to grade will be by selection and not by seniority.

The seniority in the Naval Air Service Grade, as regards Officers now on the list, will count as from the date of this Circular Letter. Time served previously in grades of the same name will not count as seniority.

The following letters before an Officer's name serve to indicate that he holds an appointment for the following specialist duties :—

- | | |
|----------------------------|------------------------------|
| (G) For Gunnery duties. | (W/T) For W/T duties. |
| (T) For Torpedo duties. | (E) For Engineering duties. |
| (N) For Navigating duties. | (C) For Carpentering duties. |

SENIORITY OF AIR OFFICERS.

Director of the Air Department.

Captain M. F. Sueter, C.B.

Wing Commanders.

- | | |
|---------------------|-----------------|
| O. Schwann. | E. M. Maitland. |
| E. A. D. Masterman. | N. F. Usborne. |
| F. R. Scarlett. | C. R. Samson. |

Squadron Commanders.

- | | |
|-----------------------|-------------------------|
| F. M. L. Boothby. | (E) C. R. J. Randall. |
| E. L. Gerrard. | S. D. A. Grey. |
| R. Gregory. | C. J. L'Estrange-Malone |
| A. M. Longmore. | P. A. Shepherd. |
| R. Gordon. | R. B. Davies. |
| C. M. Waterlow. | (E) E. F. Briggs. |
| H. L. Woodcock. | I. T. Courtney. |
| J. W. Seddon. | C. E. Risk. |
| (G) R. H. Clark-Hall. | C. L. Courtney. |
| (E) G. W. S. Aldwell. | |

The Accidents Investigation Committee.

Report on the fatal accident to Mr. Philippe Marty, when flying a Morane-Saulnier monoplane at the London Aerodrome, Hendon, N.W., on Sunday, April 26th, 1914, at about 6 p.m. :—

Brief Description of the Accident.—Mr. Philippe Marty was flying a Morane-Saulnier monoplane fitted with a 60-h.p. Le Rhone motor, at the London Aerodrome, Hendon, N.W., on Sunday, April 26th, 1914, at about 6 p.m. He had been flying in a normal manner up and down the aerodrome for about ten minutes at an altitude of about 300 ft., and was making a descent in small flat circles, switching his engine on and off. From a height of 40 ft. the aircraft nose-dived to the ground. The pilot was fatally injured and died about two hours after the accident.

From the consideration of the evidence, the committee regards the following facts as clearly established :—

- (1) The aircraft was built in France during the latter part of 1913, and rebuilt at Hendon in March, 1914.
- (2) There was practically no wind at the time of the accident.
- (3) Mr. Marty, who was acknowledged to have great experience of flying, had made a previous flight earlier in the afternoon on the same aircraft, carrying out many evolutions.

Flight Commanders.

- | | |
|---------------------|----------------------------|
| C. E. Rathborne. | Hon. J. D. Boyle. |
| R. Pigot. | J. D. Mackworth. |
| D. A. Oliver. | (W/T) W. P. de C. Ireland. |
| W. R. Crocker. | (E) J. L. Travers. |
| T. G. Hetherington. | J. T. Babington |
| J. N. Fletcher. | F. E. T. Hewlett. |

Flight Lieutenants.

- | | |
|------------------------------|---------------------------|
| A. C. Barnby. | R. J. Bone. |
| H. Fawcett. | C. H. K. Edmonds. |
| H. D. Vernon. | (E) I. G. V. Fowler. |
| R. P. Ross. | (E) H. M. Cave-Brown-Cave |
| F. W. Bowhill. | C. E. Robinson. |
| A. W. Bigsworth. | J. T. Cull. |
| A. B. Gaskell. | (E) C. D. Breese. |
| C. E. Maude. | B. D. Ash. |
| F. G. Brodribb. | E. R. C. Nanson. |
| E. T. R. Chambers. | E. H. Sparling |
| H. A. Williamson. | R. G. Lock. |
| C. R. Kilner. | A. D. Cunningham. |
| (E) W. Briggs. | J. W. O. Dalglish. |
| (E) T. R. Cave-Brown-Cave | R. H. Kershaw. |
| (G) E. D. M. Robertson. | T. A. Rainey. |
| (T) D. H. Hyde-Thomson. | D. G. Young. |
| R. L. G. Marix | R. E. C. Pierce. |
| H. A. Littleton. | Lord Edward Grosvenor. |
| A. J. Miley. | C. F. Beevor. |
| W. C. Hicks. | C. Draper. |
| E. Osmond. | H. A. Busk. |
| W. G. Sitwell | E. T. Newton-Clare. |
| C. R. Finch-Noyes. | *G. W. W. Hooper. |
| I. H. W. S. Dalrymple-Clark. | *G. R. Bromet. |
| C. H. Collet. | *L. Tomkinson. |
| | *J. R. Smyth-Pigott. |

* Acting Flight Lieutenants while undergoing flying course.

Flight Sub-Lieutenants (Probationary).

- | | |
|----------------|------------------|
| C. Wilson. | J. M. R. Cripps. |
| R. Wright. | B. F. Bainsmith. |
| F. M. L. Barr. | L. B. Hay. |
| H. G. Wanklyn. | |

Warrant Officers, First Grade.

- | | |
|-----------------|---------------------|
| (E) H. Ellison. | (E) F. H. Williams. |
|-----------------|---------------------|

Warrant Officers, Second Grade.

- | | |
|-----------------------|--------------------|
| (E) F. W. Scarff. | (C) W. A. Hancock. |
| (C) T. D. Jones. | (E) H. Dearman. |
| (C) J. G. Brownridge. | (E) W. F. Floyd. |
| H. C. Bobbett. | G. A. J. Blundell. |
| F. Everett. | C. King. |
| (E) L. Killmayer. | (C) L. Staddon. |

(4) Between Mr. Marty's two flights the aircraft was flown by another pilot, who found it in proper working order.

(5) The descent was made in circles slowly, with very little bank, the motor being switched on and off.

(6) Mr. Marty had been warned only a week before of the danger of this particular manoeuvre at an insufficient height from the ground.

(7) The fatal injuries to the aviator were caused by his body being thrown violently forward and his head striking the part of the structure in front of him.

(8) The aircraft was not fitted with a speed indicator.

Opinion.—The committee is of opinion that the accident was due to loss of flying speed resulting in a nose-dive so close to the ground that recovery was impossible. The fatal injuries to the aviator were caused by his body being thrown violently forward and his head striking the part of the structure in front of him. The committee is further of opinion that some form of quick-release safety belt of an elastic nature might be devised, which, without hampering the aviator's ordinary movements, would restrain such violent forward motion.

Recommendation.—The committee recommends that every aircraft should be fitted with a speed indicator to show the speed of the aircraft at any moment, so that the pilot can tell when dangerous limits are being approached.

THE BEARDMORE AUSTRO-DAIMLER DESIGN AERO ENGINE

FITTED TO LOHNER BIPLANE

—: WINS THE:—

SCHICHT PRIZE

OFFERED BY THE SCHICHT CO. OF AUSTRIA, TO THE WINNER
— OF A CIRCULAR FLIGHT EXTENDING OVER THREE DAYS —

— PROVING IT YET AGAIN TO BE —
THE WORLD'S FINEST AEROPLANE ENGINE

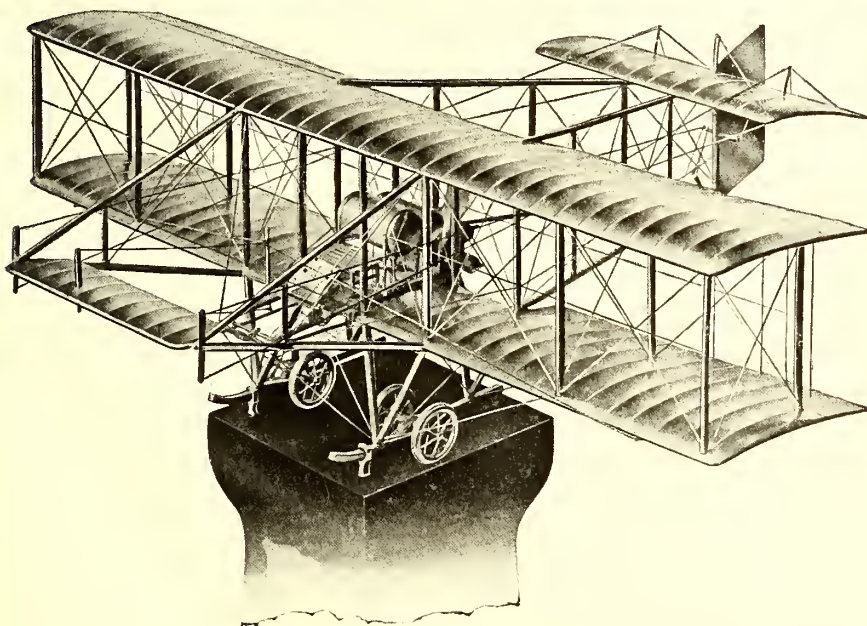
BEARDMORE AUSTRO-DAIMLER AERO ENGINE, LTD.

Selling Representatives:—

AUSTRIAN-DAIMLER MOTOR CO., LTD.

112, GREAT PORTLAND STREET, LONDON, W.

C.D.C.



Models

The Company specialise in the production of Silver scale Models of Aeroplanes, correct in detail and of fine workmanship.

Photographs and Estimates submitted free.

Representative sent to any address to take particulars

MAPPIN & WEBB, LTD.

158-162, OXFORD STREET, W. 2, QUEEN VICTORIA STREET, E.C. 220, REGENT STREET, W.

Paris: 1, Rue de la Paix. Lausanne. Rome. Nice. Biarritz. Buenos Aires.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

N.P.L. Tests on Wings, Struts, Bodies, Tail Planes and Wires.

BY W. H. SAYERS.

Following on report No. 72, dealing with various types of aerofoils, of which a summary was given in the issue of June 11th, Report No. 73 deals with the distribution of pressure over the surface of an aerofoil of a section very similar to R.A.F.6, and is particularly devoted to an investigation of the conditions towards the tip of a wing. The results show a very great drop in lift, and a still greater increase in drift, towards the tips, the lift to drift ratio decreasing from a value of nearly 20 to 1 at the central section to barely 5 to 1 at a section close to the tip, and reducing the ratio for the whole surface with an aspect ratio of 6 to 1 to only two-thirds of that of its best part.

The experiments were only carried out on one model, as the process of making these tests is extremely slow, some 600 different observations going to this one series of tests, but they indicate the desirability of experimenting with models of varying aspect ratio, and with specially shaped tips, with a view to discovering to what extent these end losses may be minimised. This fact is acknowledged in the report in question, so that one may hope for some useful information on these points at some date in the future.

It is also to be regretted that the pressure distribution beyond the "critical angle," referred to in the previous reports, was not investigated, as this would have entailed comparatively little extra work and might have produced useful information relating to the possibilities of extending the range of efficient angles in an aerofoil.

Streamline Strut Effects.

Report No. 74 deals with experiments on "streamline" struts, on model aeroplane bodies, on a model of a landing wheel, and on the resistance of wires.

The first series of strut tests were made on various struts from a B.E.2, and gave results of an extremely erratic nature—which are ascribed to the imperfect symmetry of these struts.

Certain quite unexpected results were obtained, in particular that certain struts at small angles in a cross wind tend to move in the opposite direction to that which would be expected. That is to say, that when the nose of the strut is turned slightly to the right, so that the wind strikes its left front, there is a force tending to move the strut to the left, just as a cambered aerofoil has a positive lift at small negative angles.

Tests at various speeds showed that the head resistance of the struts did not increase as rapidly as the square of the velocity.

A set of struts of varying depths in the line of flight, but of equal thickness and similar general section, were then prepared with special care to secure the symmetry and accuracy of workmanship absent in the B.E. struts previously tested. These struts when tested showed that for struts having a depth to width ratio of less than $2\frac{1}{2}$ to 1 the cross wind effects were very erratic, and, as in the case of the struts previously mentioned, the forces due to a cross wind may be in the opposite direction to that expected—i.e., that these struts may act as a negative fin.

Between a depth to width ratio of $2\frac{1}{2}$ to 1 and 3 to 1, the cross wind forces are very small, but normal in direction, and practically vanish at coarse angles. Above $4\frac{1}{2}$ to 1 the struts behave as ordinary fins, at all angles, unless they are very far from symmetrical. The experiments indicate that the air flow round struts of ordinary form is very unstable and that the air resistances of such bodies may vary greatly owing to slight variations in angle or in shape.

Full tables of the actual values of the resistances and side forces for the various struts are given.

Body Resistances.

The tests on model aeroplane bodies are of considerable interest. Those tested were models of the original B.E.2, B.E.3, of a body consisting of a short egg-shaped nacelle of rounded cross section with a long, small diameter boom carrying the tail planes (i.e., that of the R.A.F.'s propeller driven

machine with engine in front) of a modified B.E.2 body (probably a model for a B.E.2A), and of a "coque" fuselage. Measurements were made at various angles of the head resistance, of the lifts, and of the lateral forces on these bodies.

The drift figures are quite interesting. The original B.E.2 body shows a head resistance, when horizontal and parallel to the wind flow of 54 lbs., for the full-sized body at 60 m.p.h., absorbing nearly 9 h.p. Body No. 4, the modified B.E.2, has a head resistance of 35.3 lbs. (5.6 h.p.), although wider and deeper, the improvement apparently being due mainly to cowling in the space between pilot and passenger. The body of B.E.3, which is still wider, though not so deep as either of the previously mentioned models, is cleaner of outline and shows a head resistance (at 60 m.p.h. and for the full-size body) of only 25.8 lbs., equal to 4 h.p.

Body No. 5 (the "coque" section, apparently rather like the R.A.F.'s S.E.1) reduces these figures to 18.4 lbs. ($2\frac{1}{2}$ h.p.), while the egg-shaped body with the projecting tail boom cuts these figures down to 12.4 lbs., and a little less than 2 h.p. at the same speed.

[It must be remembered that by the time stay-wires had been fitted to hold the tail rigid the head resistance would be considerably increased.—ED.]

These figures are approximate only, the models varied in scale, and the question of the correction in applying the results to full-size machines is still somewhat in doubt; but the possibility of saving something like 10 per cent. of the total h.p. of a machine by careful design of the body is clearly shown, and is a matter worthy of considerable attention.

All the bodies tested gave slight lifts with positive angles and negative lifts at negative angles, and were by themselves longitudinally unstable. The lateral forces on the bodies—i.e., the forces due to the wind flow being partially sideways, were always in the direction which would be expected, and with the exception of body No. 5, which had a pair of small fins aft, all these bodies were directionally unstable without their rudders. That is to say, that the statements made in this paper that B.E.s were all inherently unstable directionally and would spin and nose dive if the rudder were left free or broke off, are confirmed by the N.P.L., and the facts must have been known to the chief officials of the R.A.F. at or about March, 1913, the date of this report.

[B.E.2 machines are still being built though this knowledge is 15 months old.—ED.]

Tests of the B.E.2 body at varying speeds show that in this case the drift increases rather more rapidly than as the square of the speed—a result entirely opposite to that obtained with the struts dealt with in the earlier part of the same report. In a series of tests made by Dr. Thurston, reported in this paper on June 4th, it will be recollected that it was found that the head resistance of certain struts varied at a greater rate than the square of the speed when the bar was thick compared to its depth in the line of air flow, and at a less rate when the bar was relatively thinner—apparently in direct contradiction to the results shown in this report—as all the body models have a much greater length to width ratio than any of the struts, so that it is evident that there is still room for a large amount of careful experiment on this subject of the variation of air resistance with speed.

Resistance of Wheels.

The experiments on a model of an aeroplane wheel contain nothing of startling interest—the values of the various forces and resistances are, of course, of value for design purposes, and the head resistance in the normal position in flight is unexpectedly large, 2.4 lbs. per wheel at 70 m.p.h. for a 26-inch diam. disc wheel, or nearly one-third as great for four wheels as that of the whole body of B.E.3.

Tail Plane Resistances and Lifts.

The fourth section of the report deals with tests made on a model of the tail plane and elevators of a B.E.2A. With the elevator flaps parallel to the chord of the fixed plane the

whole tail behaves like a rather poor aerofoil, having a maximum lift to drift ratio of about 8 to 1 at 4 degrees angle of incidence.

Increasing the angle of the tail flaps up to about 30 degrees increases the lift, but above that angle the lift again falls off. Similarly with negative angles the lowest value of the lift occurs when the tail flaps are at 30 degrees to the tail plane, and this holds for any angle of incidence of the fixed plane from 16 degrees to — 16 degrees. The maximum lift of the tail as a whole occurs when the fixed plane is at 16 degrees and the elevator flaps at about 40 degrees.

The drift, as would be expected, is generally considerably increased when the tail flaps are at large angles to the tail plane. The general result is that for this particular tail the maximum controlling force can be obtained if a range of movement of from 30 degrees to — 30 degrees of the flaps relative to the fixed plane is allowed.

The absence of any "critical angle," such as found in ordinary aerofoils, in this plane, until very large angles of the elevator flaps are reached, is somewhat curious and distinctly worthy of investigation, as the absence of such phenomena in control surfaces is eminently desirable, and it would be useful to know what are the conditions which govern their appearance. It appears to the writer that it is very probably connected with the low aspect ratio of the tail planes.

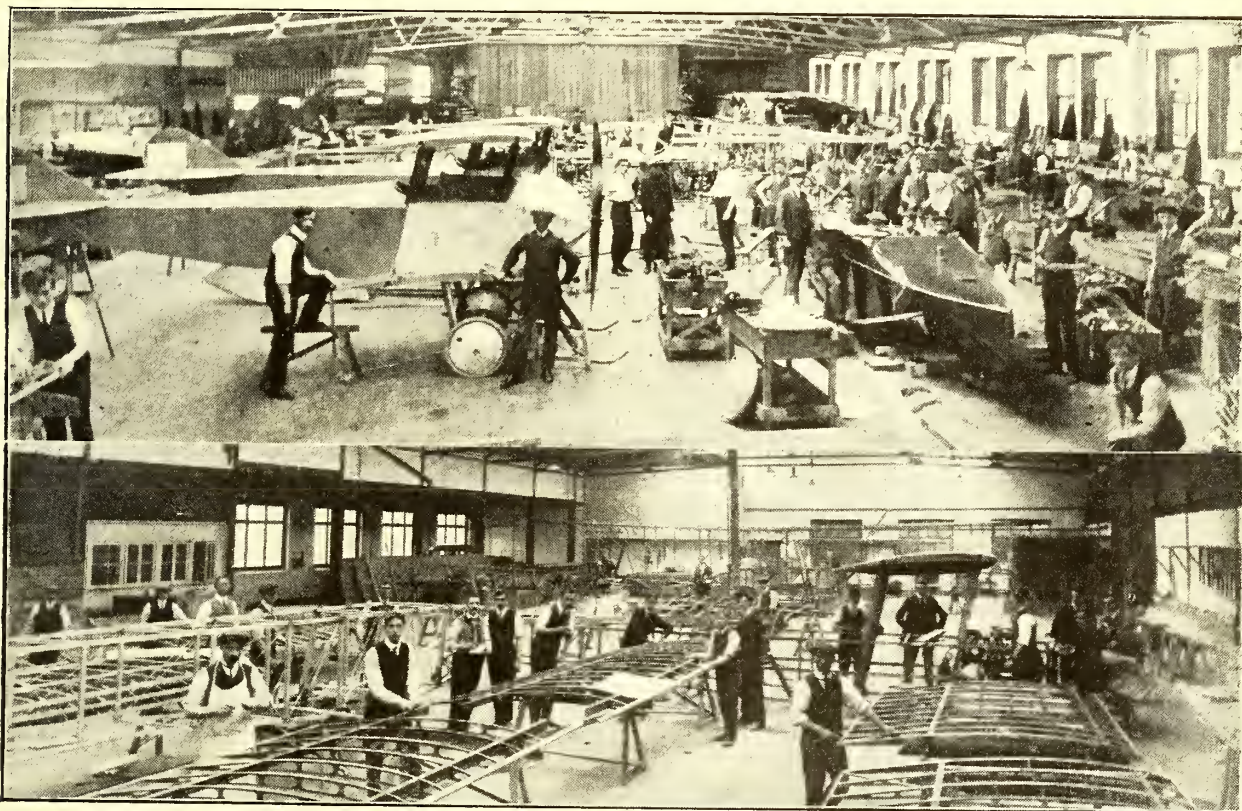
Resistances of Wires.

The fifth and last section of this report deals with experiments on the resistance of wires. Theoretical considerations show that the value of the resistance of bodies should vary with differing wind speeds in a manner changing not only with the wind speed, but also with the actual dimensions of the body, and a series of tests made with wires of varying diameters and at different air speeds were made, which showed that when the product of the wire diameter and the air velocity had the same value the various experiments gave concordant results. The same diameter wire at differing speeds, or wires of differing diameter at the same speed, gave differing values of the resistance coefficient, but for the sizes of wire and flying speeds employed in actual aeroplanes the divergences become slight.

These tests seem to throw some light on the divergences from the "square law" remarked on above, as they show, for low values of the product, diameter multiplied by velocity, a resistance increasing at a less rate than the square of the speed, and for higher values, an increase at a higher rate.

It is certain that a similar state of affairs holds with bodies of other than cylindrical form and that for any given form the resistance may vary either more rapidly or less rapidly than the square of the speed, according to whether the value of some function of the dimensions of the body and the air speed are above or below a value peculiar to that body.

The Growth of an Industry.



Above is shown the Sopwith assembling shop in the old works. Readers of "The Aeroplane" will remember a photograph of the shop taken a little over a year ago showing one "Bat-boat" in possession. As may be seen, numerous "Scouts," a "Bat-boat," and sundry other machines are being put together.

Below may be seen the assembling shop in the new works, which are in the same street, at Kingston-on-Thames, as the old works. This shop is considerably bigger than the other, and it is also busily occupied.

A matter of a year and a half ago the Sopwith firm had turned out only one or two machines, which, however, were uniformly successful, as when Mr. Hawker beat the British Duration Record, which still stands. The result of these early successes, and of consistent good performances in competitions, was that first the Admiralty and then the War Office placed orders with the firm, which is now as busy as it can be building machines varying in size from the tiny "scout" to the 240-h.p. gun-carrying seaplane.

Some New Problems.

The progress made by aeroplane designers and constructors of late in producing more highly efficient machines, and the production by engine makers of motors which give more power for less weight, has apparently brought us up against some very serious new problems, in that there now exist a number of machines which have in fact too much power.

One must remember that actually an aeroplane has no variation of speed. That is to say, given a machine of a certain weight with an engine giving a certain power, and with the wings flying at a certain fixed angle, the speed remains fixed. If the power is increased the aeroplane flies faster through the air, but it climbs, and if the power is decreased the machine drops, but the speed cannot be varied while keeping at the same level. Therefore, if it is desired to fly faster when the engine is giving more power, it is necessary to decrease the angle at which the wings are set, so as to prevent the machine from rising as it is dragged faster through the air. This resolves itself in practice into lifting the tail and pushing the nose of the machine down as the speed increases.

Hitherto our chief dread has been of a machine flying with its tail down, a sign that it is under-powered and on the verge of that position when the wings are at so big an angle that they are dragging through the air without lifting—the next thing being that the machine “stalls” and rolls over side-ways. Now, however, pilots of over-powered machines find that these are liable to “hunt,” a condition which may be as dangerous as stalling. Imagine, for example, a machine in which the power is increasing as the throttle is opened. To keep it from rising the pilot points the nose more and more downwards, till finally the wings are actually at a negative angle to its course. There is then no pressure underneath the wing, except what may be set up by eddies caused under the leading edge striking the under surface far aft. The air strikes the leading edge more and more on the top, so that the point at which the air deflected upwards by the nose of the plane reaches its maximum upward suck travels farther and farther aft. And so the centre of all the pressures supporting the planes also travels aft. Meanwhile the centre of gravity of the machine remains where the designer put it—whether he intended to or not.

Now, when the centre of pressure gets too far back it apparently reaches a point where it ceases to support the machine in an horizontal path, and the centre of gravity simply falls over in front of it. Meanwhile, remember, the pilot has been holding the tail up with the elevator to prevent the machine from climbing, and so when the dive comes he is actually helping it. This critical diving point, when the lift falls away suddenly, is apparently reached without much warning, much as in some machines the “stalling” point is reached suddenly without the lateral control becoming spongy.

Hitherto numerous experiments have been tried with planes at positive angles of lift, and our theoreticians can tell us just at what angles planes of certain shapes become dangerous, but until quite lately we have not found it necessary to experiment with planes having too much lift. These new and unconsidered angles on the negative side of the scale have now to be investigated.

However, the practical point is this: When a machine reaches that danger point, it dives off on its own account and the pilot has to bring it back to a positive angle, or thereabouts. As soon as he does so it starts to shoot up again, and so he can only keep level by just balancing on his elevator between going up like a rocket and coming down like a stick. This is what is commonly known as “hunting.”

One problem is to discover whether these dives are really dives, or whether they are merely part of a wavy path which the machine will pursue indefinitely if the elevator is fixed in that position and the power remains the same. This problem will in due course be discussed by scientists under some such title as “phugoid periodicity.”

Another problem is the effect produced on tails and elevators of various sizes by these dives, as, for instance, whether the downward sweep of air from the planes acting on the tail may make the elevator ineffective, and so cause an uncontrollable dive, even in a machine which is both inherently stable and very controllable at ordinary speeds and angles.

Yet another problem is concerned with the strains set up in the planes themselves in an over-driven machine. As the machine comes over the crest, so to speak, of its path and starts one of the dives, the head-resistance (or “drift”) increases enormously and tries to force the wings back. At the same time the centre of pressure (or “lift”) shoots back and increases the lifting pressure on the rear spar, at the same time that the compression caused by drift is increased. In this way strains hitherto uncalculated may be set up quite suddenly.

It seems more than likely that the recent accident to the Wight Seaplane was caused by some of these stresses hitherto unsuspected and uninvestigated. I know that this machine would fly quite well with 150 h.p. instead of 200 h.p., and I am told that when at full speed of nearly 80 m.p.h. it hunts. I am told that the R.A.F.'s new “R.E.s” with 120 h.p. engines also hunt badly at full speed, and that they would fly easily with about 80 h.p. or 90 h.p. The small Sopwith scouts with 80 h.p. or 100 h.p. also hunt, I am told, and they would fly quite strongly with 50 h.p.

There is not necessarily anything wrong with a machine that hunts at full power, because that power is needed for fast climbing and quick getting off and carrying big loads, but the phenomena attendant on hunting have to be investigated very fully, and one hopes our scientists will get to work without delay, now that their attention has been drawn to the subject.

Meantime pilots flying over-powered machines will do well to remember that if they do get into a dive the first thing to do is to switch off or throttle down the engine. It has always been an article of faith among pilots to keep the engine running when in trouble with controls, so as to keep a draught on the rudder and elevator. It now seems likely that in modern machines just the opposite may be right. In a tractor machine spinning round its own nose the tractor-screw acts as a huge fin forward, and the spin may be stopped by switching off. In any over-powered machine it is the propeller or tractor which drives it too fast and the excessive speed may be stopped by switching off.

It is just possible that in such a machine when diving steeply one might reach a point at which the effect of the negative angle of the wings trying to turn the machine over on its back might just be balanced by the pilot with full elevator trying to pull the machine right side up. This presents yet another problem for investigation.—C. G. G.

Aerial Photography.

A correspondent, writing apropos the Fabbri camera, points out that it is not necessary to pull a string to work it. It is absolutely automatic, and takes 300 pictures at regular intervals, the intervals being regulated through a 9-speed gearbox, which is composed of sets of spur wheels always in mesh, which are locked to the driving shaft by a sliding key. The operative power for this mechanism is supplied by a windmill on the outside of the fuselage, which drives the film and the shutters. The interval at which the pictures are taken is regulated by moving a lever, and the drive can be cut out and pictures taken at irregular intervals if so desired. This correspondent describes the camera as a beautiful piece of work, too good for the average man to handle. The interesting point is that not only does the photograph show the ground, but also a compass and altimeter fixed on the machine, so that each picture shows the direction and height at which it was taken.

Racing at Brooklands.

There is a motor race meeting at Brooklands on Saturday next, June 27th, and after the motor racing the usual aeroplane handicap will take place. Mr. Sopwith has entered three machines, the Martinsyde, the D.F.W., and a Blériot or two are certain starters, and it is probable that there will be sundry new Vickers and Bristol machines available.

Aviators' Safety Belts.

The Royal Aero Club has decided to offer a prize of £50 for the most suitable form of safety belt to be used by aviators. Intending competitors should write to “The Secretary, The Royal Aero Club, 166, Piccadilly, W.” for further information as to conditions.

London—Manchester—London

THE GREAT AIR RACE

Saturday, June 20th

WON BY

Mr. W. L. BROCK on

PRATT'S

Perfection Spirit



By Appointment.

VERB. SAP.!

Anglo-American Oil Co. Ltd.
36-38 Queen Anne's Gate, S.W.

STILL LEADING!

LONDON TO MANCHESTER RACE RESULT

1st W. L. Brock using an INTEGRAL PROPELLER

2nd R. Carr using an INTEGRAL PROPELLER

3rd J. Alcock using an INTEGRAL PROPELLER



*Special process of Metal Tipping for Seaplanes. Used by
H.M. War Office, Admiralty, and the World's leading Aviators.*

THE INTEGRAL PROPELLER COMPANY, LTD.

Offices and Works : 1b, Elthorne Road, Upper Holloway, N.

Telegrams : "Aviprop (Upholl), London."

Telephone : Hornsey 2345.

P.C.B. 3.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

Naval and Military Aeronautics.

GREAT BRITAIN.

The following promotions appeared in the list of honours conferred on the occasion of the King's Birthday, June 22nd: K.C.B.

To be an Ordinary Member of the Military Division of the Second Class, or Knight Commander, of the said Most Honourable Order—

Colonel (temporary Brigadier-General) David Henderson, C.B., D.S.O., Director-General of Military Aeronautics, War Office.

ROYAL FLYING CORPS.

The King has been graciously pleased to approve of the undermentioned Officers being promoted by brevet for services in connection with the Military Wing, Royal Flying Corps. Dated June 22nd, 1914:—

To be Majors:

Captain (temporary Major) George H. Raleigh, the Essex Regiment.

Captain (temporary Major) John H. W. Becke, the Sherwood Foresters (Nottinghamshire and Derbyshire Regiment).

Captain (temporary Major) John M. Salmond, the King's Own (Royal Lancaster Regiment).

Captain (temporary Major) Charles A. H. Longcroft, the Welsh Regiment.

As Director-General of Military Aeronautics, General Sir David Henderson has been responsible for the present state of high efficiency to which the Royal Flying Corps has been brought during the past twelve months.

Major Raleigh commands No. 4 Squadron, Major Becke No. 6 Squadron, Major Salmond No. 7 Squadron, and Major Longcroft No. 1 Squadron, R.F.C.

PROMOTION IN THE ROYAL NAVY.—Commander to Captain.

Admiralty, June 22nd.—The following commander has been promoted to the rank of Captain in his Majesty's Fleet: Oliver Schwann. Dated June 30th, 1914.

Captain Schwann, who is now Assistant to the Director of the Air Department, was the first aviator to get off the sea in an aeroplane in this country. The feat was performed on an Avro with a 35-h.p. Green engine.

* * *

NAVAL.

During last week the following work was done at Eastchurch:—

On Monday, Sub-Lieut. Beevor, R.N.R., flew to Isle of Grain on No. 70 Maurice Farman. Flying was done on No. 153 Bristol tractor (80-h.p. Gnome), B.E. No. 49, Henri Farman No. 31, Sopwith No. 104, Bristol tractor No. 43.

On Tuesday, Caudron No. 45 (50-h.p. Gnome), B.E. No. 49, Avro No. 150 (50-h.p.), Deperdussin No. 7 (70-h.p.), and Bristol No. 43 were out. Henri Farman No. 31 was flown to Isle of Grain. On Wednesday, Mr. Pixton arrived on Sopwith No. 103 (80-h.p. Gnome), and Shorts Nos. 1, 34 and 64 were in use.

On Thursday, Sopwith No. 103 was flown by various officers. On Friday, Short tractor No. 21 arrived from Isle of Grain.

* * *

Flying commenced at Dundee on Tuesday of last week, when Capt. Barnby, R.M.L.I., left the base at 10.30 with Lieut.-Comdr. Layton, of the Submarine Service, on Short No. 77. Capt. Kilner, with Lieut. Taylor, on Short No. 75, followed, and both machines engaged in submarine "spotting" off the mouth of the Tay for an hour and a half. Capt. Barnby then made a second flight over Dundee.

On Wednesday, at 10.15, Capt. Barnby, on Short 74, carried Colonel Brown, while Capt. Kilner, on Short 75, took Lieut.-General Sir J. S. Ewart, K.C.B., A.D.C., G.O.C. Scottish Command, and both machines flew for some time over the Tay Valley.

After landing these officers, the pilots took aboard A.M. McIntyre and A.M. Dickinson as observers, and flew to Barry Camp and observed the effects of big gun fire at sea targets. Capt. Barnby landed near the shore beside the camp, after which both machines returned to Carolina Port.

At Calshot on Monday the Sopwith gun-carrier flew over the Solent and Southampton Water. This was the first flying at this station since the fatal accident to Lieut. Creswell, R.M.L.I. On Tuesday the Sopwith (100 Green) seaplane was out. On Wednesday there was no flying. On Thursday the Sopwith (100 Green) and the Sopwith (100 Anzani) both flew during the day. There was no further flying during the week.

MILITARY.

The following communiqué has been received:—

Royal Flying Corps (Military Wing).—Diary of work for week ending June 13th, 1914:

Concentration Camp.—Headquarters, Headquarter Flight, Aircraft Park, Nos. 2, 3, 4, 5, and 6 Squadrons.

The training programme, consisting of aircraft reconnaissances and tests, M.T. convoy schemes, experiments, lectures, conferences and committees, was continued throughout the week. Reconnaissances were carried out daily as ordered, with the exception of Friday, 12th instant, when, owing to low-lying clouds, observation was not possible.

The results obtained in all branches of training have been very satisfactory. The camp was visited on the 11th instant by the General Officer Commanding-in-Chief, Southern Command, who inspected the sheds, workshops and camp lines and the troops on parade. He also attended a lecture by one of the squadron commanders on "Observation of Artillery Fire."

Tests.—Speed tests of machines of various ages, work and exposure were held over a level course 1,342 yards long. Two runs in each direction were made and the mean taken. The following machines were tested: Avro (50 h.p.), B.E., Blériot (80 and 50 h.p.), Henri and Maurice Farman (1914). The highest speed was attained by the 70-h.p. Renault-B.E., viz., 73 m.p.h.; the lowest being the 50-h.p. Blériot, 58.28 m.p.h.

Climbing Tests.—Pilots had to climb 3,000 ft. as rapidly as possible, the machines being fully loaded (two-seaters carrying passengers). The following machines were tested: Avro (50 h.p.), 70-h.p. Renault-B.E., Blériot, Henri and Maurice Farman. The best performance was made by the 70-h.p. Renault-B.E. in 9½ mins.

Landing Tests were carried out over tapes 7 and 22 feet high. The same types of machines as above were tested, with the following best results: 50-h.p. Avro, 7-ft. tape, first graze 43 yards, run 60 yards, total 103 yards; 50-h.p. Blériot, 22-ft. tape, first graze 76 yards, run 84 yards, total 160 yards.

Flying at night has been carried out on several occasions, when landings by the light of special flares have been successfully made.

War Office, June 17th, 1914.

One regrets to see that the above tests did not include either the R.E. or Sopwith biplanes, as the figures relating to these would be of interest. It is presumed that the B.E. which did 73 m.p.h. was a brand-new one, as the speed of these machines is considerably less than 70 m.p.h. after a few months' use has weakened the wing structure. The 50-h.p. Avro seems to have done well to have beaten the 58.28 m.p.h. of the 50-h.p. Blériot, as it must be quite an old machine.

* * *

For the King's Birthday review of the Southern Command troops on Salisbury Plain some 10,000 of all arms paraded before an attendance of over 20,000 persons. The salute was taken by General Sir Horace Smith-Dorrien, and 12 aeroplanes from the Concentration Camp "dipped" past the saluting point.

* * *

The usual King's Birthday review took place at Aldershot on Monday. Lieut.-General Sir Douglas Haig took post for the salute at noon.

Three flights, consisting of four B.E. and four Sopwith biplanes and four Blériot monoplanes, were out under Major J. F. A. Higgins, D.S.O., O.C. No. 5 Squadron, R.F.C., and when the Plain had been cleared of troops the "flying parade" began. The machines rose in quick succession, wheeled as they reached the western edge of the review area, and dipped as they passed the saluting base.

The engagement is announced of Captain Robert Albany Boger, Royal Engineers, youngest son of the late Captain Henry T. Boger, Royal Navy, and Diane, eldest daughter of Colonel Reginald Salmond Curtis and the Hon. Mrs. Curtis, of 33, Cranley Gardens. Captain Boger is an officer of the R.F.C. Reserve.

* * *

A party of mechanics of No. 2 Squadron left Montrose on Friday for York to dismantle the hangars there which were in use in the flight south.

* * *

Major Becke, O.C. No. 6 Squadron, is evidently intent on doing something of a record nature with the R.E. machine. On Monday of last week he climbed to 12,000 ft., and the following day increased that to 16,000, when his engine began to misfire, so he had to give up, and it took him 25 mins. to glide down.

* * *

Meantime, one awaits with interest the official figures for the height record of some 19,000 ft. set up by Lieut. Norman Spratt, R.F.C. Special Reserve.

* * *

No. 6 Squadron is apparently to go to Dover, as orders have been received to go there on July 6th.

FRANCE.

On June 15th Adjudant de Saint-André and Corporal Labouchère, of the Chalais-Meudon escadrille, flew to Dijon on armoured biplanes with Anzani motors. Corporal Gastingier and Sapper Brindejonc were delayed at Chatillon by bad weather.

Sapper Cheveau, who was terribly injured in the smash which killed Brigadier Blot, died from his injuries on June 15th at Toul.

On June 15th, Lieut. Quillien flew from Epinal to Longues (Calvados) on his Blériot, covering 550 kms. in 5 hours without landing. On the following day he continued to Cherbourg with the intention of flying back to Epinal, but was brought down by bad weather.

On June 12th, Adjudant Quennehen, carrying a passenger and a recording barograph, flew across country on a Maurice Farman biplane for 13 hrs. 40 mins. without stopping, undoubtedly putting up a record for military flying with a passenger. His route was as follows: Epinal, Chaumont, Epinal; Epinal, Nancy, Chalon-sur-Saône; Chalon-sur-Saône, Jussey, Epinal; Epinal, Dayon, Epinal; Epinal, Nancy, Epinal; Epinal, Dayon, Vittel, Epinal. The total distance covered was about 1,000 kms., a very creditable performance.

On June 15th Maurice Farman escadrille No. 16, commanded by Capt. Mauger de Varennes, flew from Troyes to Dijon. After a stop of 45 mins. they continued to Lyons and Marseilles.

On June 18th, Commandant Félix was testing a Drzewicki monoplane, destined for the "concours de sécurité" at Buc, when the machine got out of control and dived steeply to earth. The pilot was instantly killed.

Commandant Félix will be remembered for his fine flying on the Dunne. He was one of the first French military aviators, commanded the Centre at Etampes, and at one time held the world's record for altitude on a Blériot.

The machine on which he was killed was a "canard" monoplane built by M. Ratmanoff to the designs of M. Drzewicki, the famous Polish scientist, and it was intended to be inherently stable. Unfortunately, it was like very many scientific products in that it was based on insufficient premises. The longitudinal stability may have been all right, but, like the biplane on somewhat similar lines which was built by the Royal Aircraft Factory and killed Mr. Theodore Ridge, the side area was wrong, a defect which should have been obvious to anyone who was not a theoretician.

On Friday, June 20th, M. Maurice Farman put several machines through their tests for the army.

The dirigible "Capitaine-Ferber" made a flight over Reims on June 20th.

On June 20th a Voisin biplane (Salmson motor) was put through its tests for the Russian army at Issy, the machine reaching 1,100 metres (3,600 ft.) in 8 mins.

On June 20th Lieut. Fournier, of the French navy, left Marseilles on a hydro-aeroplane for San Raphael.

On June 16th Escadrille No. 12, comprising five Nieuports (100-h.p. Gnômes) and piloted by Lieut. de Villepin (in command), Quartermaster Bowens, Sergeant Picquet, and Corporals Chapied and Brulard, accompanied by mechanics, flew from Reims to Bar-le-Duc.

GERMANY.

On June 15th three military pilots were flying at the inauguration of an aerodrome at Deutsch-Eylau when one of them fell into the crowd, seriously injuring a man, a woman, and a child.

Z. 5 is at Potsdam at present, where her length is being increased to bring her to 148 metres.

At Graudenz, whilst a tank was being filled from a barrel of petrol at the military aviation station, the barrel exploded, killing Sergeants Bertram and Nahrstedt and Corporals Kohlein and Mueller.

On June 14th a Russian aviator-officer and passenger landed near Gingen on German territory, having lost their way in a fog. They carried no papers of any kind, excepting a Russian map. The pilot, Lieut. Schoranski, came from the Grodno aviation station and intended to fly to Suwalki. The German authorities took charge of the pilots until orders arrived from the commanding officer of the army corps, when the officers were set at liberty and returned.

Several naval waterplanes have been manœuvring around Heligoland, one of them, E. 20, meeting with an accident on the way. Cutters and torpedo-boats rescued both inmates and machine.—B.

AUSTRIA.

The Körting dirigible left the flying-ground at Fischamend on Saturday morning, under the command of Capt. Hanswirt, and was followed after about half an hour by Lieut. Pilatz and a naval officer, Fregat-Lieut. Blatschka, on a Farman biplane. Lieut. Pilatz announced his intention of making a mimic attack on the dirigible, but unfortunately, from some reason unknown, he actually fouled the envelope and ripped it open. The exhaust of the motors set fire to the escaping gas, and the dirigible fell to the ground a twisted mass of metal and cinders, her crew of four officers and two N.C.O.'s and a civilian being burnt to death. The biplane fell alongside, and both occupants were also killed.

The Körting, which has been in the service of the Austrian army for nearly three years, was a semi-rigid, about 200 ft. long and 34 ft. in diameter, and was driven by two 75-h.p. Körting motors, giving a speed slightly over 30 miles per hour. The crew of the Körting were Capt. Hanswirt, Lieuts. Hochstätter, Hardinger and Breuer, Engineer Kammerer, and two corporals.

RUSSIA.

Capt. Stoiakine, a pilot who had hitherto flown biplanes, was trying a monoplane at Gatchina on Friday, June 19th, and making a sharp banked turn low down to avoid some trees, side-slipped and was killed.

ITALY.

The Italian navy have ordered an escadrille of Bréguet sea-planes (130-h.p. Salmsons), and three of these have been put through their reception tests in a rough sea by M. Derôme.

Foreign Notes.

France.

On Friday, June 19th, a third series of trials in connection with the "Concours de la Sécurité en Aéroplane" were made at Buc.

Certain parachute trials by Baron Od'Kolek opened the proceedings, after which M. Garaix, on the Schmidt biplane, arrived from Chartres with four passengers, was equipped with various instruments, and set forth for trials which showed a maximum speed variation of from 19 metres to 33.4 metres per second (42.4 to 74.4 miles per hour).

M. Moreau's "aerostable" flew, but the motor is said to have been running badly.

Lieut. Gouin, on the Blériot parasol, made speed-variation tests showing a variation of from 19 metres to 30.5 metres per second (42.4 to 68 m.p.h.).

No other incidents of importance seem to have occurred, and the next day certain of the jury inspected various safety appliances, including safety clothing and an oleo-pneumatic chassis designed by a M. Lacrotte.

The three French societies, L'Association Générale Aéronautique, le Comité National pour l'Aviation Militaire, and the Ligue Nationale Aérienne, have joined forces and formed a body which is to be known as the "Ligue Aéronautique de France."

Under the presidency of General Bailloud, Grand Cross of the Legion of Honour, formerly O.C. 20th Army Corps at Nancy, this body will carry on the work of all its predecessors and will assist the Aero Club de France in encouraging the progress of aerial touring in providing landing-grounds, in carrying out the system of aerial signalling inaugurated by the Comité National, and to supervise the production of suitable and accurate maps for aerial navigation.

One wishes the amalgamated League every success in continuing the good work done hitherto by its progenitors.

On Thursday last the Sperry automatic stabiliser was exhibited to the jury of the "Concours de la Stabilité en Aeroplane" at Bezons. The stabiliser was fitted to a Curtiss flying-boat. During the tests the machine was made to ascend from the water, fly in a horizontal path, pick up its gliding angle on switching off the motor, and finally to land—all under the control of the stabiliser. During one of the flights the passenger climbed out onto the wings while the pilot stood up with his arms above his head. The stabiliser appears to have worked excellently and has aroused the enthusiasm of the French Press.

On June 15th M. Maurice Farman, accompanied by Mlle. Andrée Laies, flew from Buc to Evreux, where he landed at the hangar of the Comité National. After lunch they journeyed to Hocqueville, near Rouen, and landed in the park of M. Louis Renault's chateau. The return journey to Buc was made via the valley of the Seine.

Germany.

The "cannon country," as Essen and its environment is named in Germany, Rhenish-Westphalia being the home of Krupp and other big firms of like nature, holds its flying-week on the Gelsenkirchen ground from July 12th to 19th. Only machines of German make may compete; no embargo is set on the motors. A sum of 35,000 marks has been presented for

prizes, 5,000 coming from the War Office. A special prize of £50 will be given for wireless messages, whilst the other money will be shared between the winners of the duration, elevation, racing and cross-country contests.

According to the German Press, the Parseval Dockyard at Bitterfeld is building a new type of non-ignitable airship for the British Government, the spaces for pilot and crew being covered in by a steel jacket, whilst an automatically revolving gun is to be staged on a platform outside the jacket.

Walter Hohendorf, on an 80-h.p. Union-Pfeil biplane, looped the loop three times on June 15th at Teltow, this being the first time a German has emulated Pégoud's feats on a "double-decker."

On June 15th Herr Krieger was flying upside down with a passenger at Johannisthal when he lost control at 1,000 ft. and fell to the ground. The petrol caught fire and the crew were burned to death. This is the first looping fatality with a passenger.

On June 16th a mechanic was seriously injured at Johannisthal through fouling a propeller.

Twenty-four entries have been received for the Warnemünde hydro-aeroplane meeting from August 1st to 10th, when a large number of new types will make their appearance. The entries run as follows:—3 Flugzeugbau Friedrichs hafen (pilots—Schirrmeister and Truckenbrodt); 3 Rumplers (Basser and Linnekogel); 3 Albatros, entered by Hirth (Hirth, Langer and Kuhne); a Melli-Beese (Boutard); 2 Gotha W.F. (Schlegel and Dahm); 4 Albatros, entered by the works (Thelen, Krieger, von Loessl and Boehni); 3 Ago (no pilots specified); 2 Aviatik (Stoeffler and Bauerlein); 2 A.E.G. (Schauenburg and Gruner); and 1 Oertz (Hammer).

The stages of the Northern Sea Flight are as follows:—

August 21st—Schwerin to Warnemünde (Germany), 100 kms.

August 22nd—Warnemünde to Copenhagen (Denmark), 180 kms.

August 23rd—Copenhagen to Aarhus (Denmark), 190 kms.

August 24th—Rest day at Aarhus.

August 25th—Aarhus to Aalborg (Denmark), 140 kms.

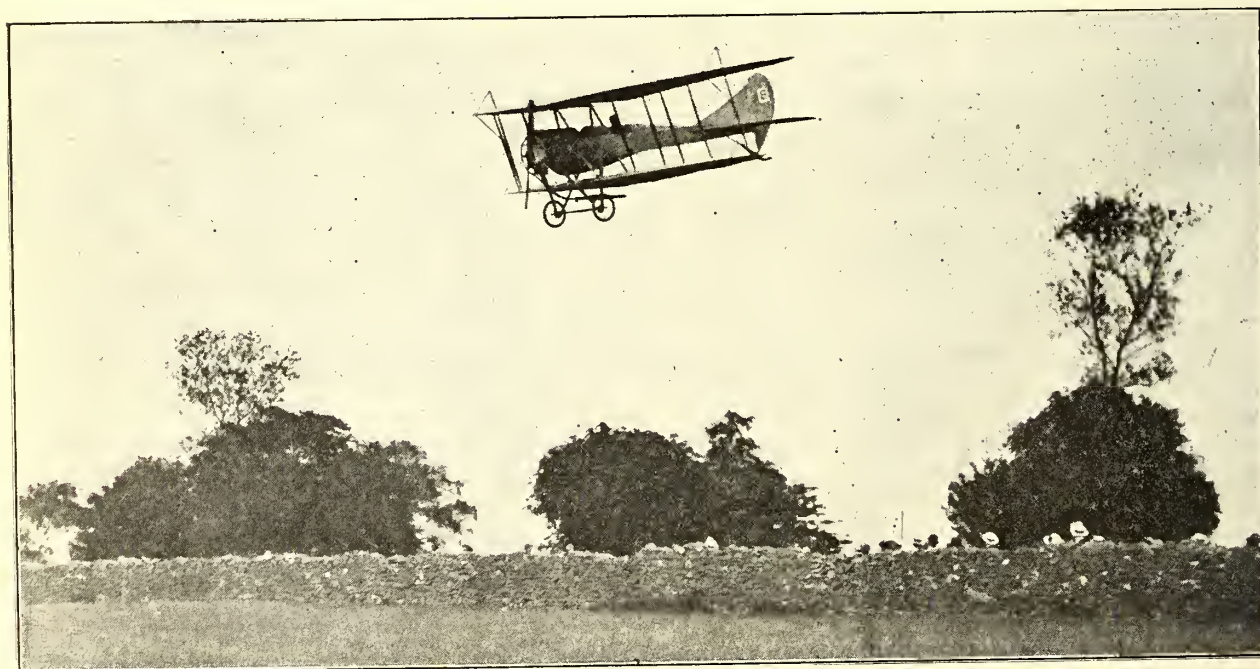
August 26th—Rest day at Aalborg.

August 27th—Aalborg to Gothenburg (Sweden), 140 kms.

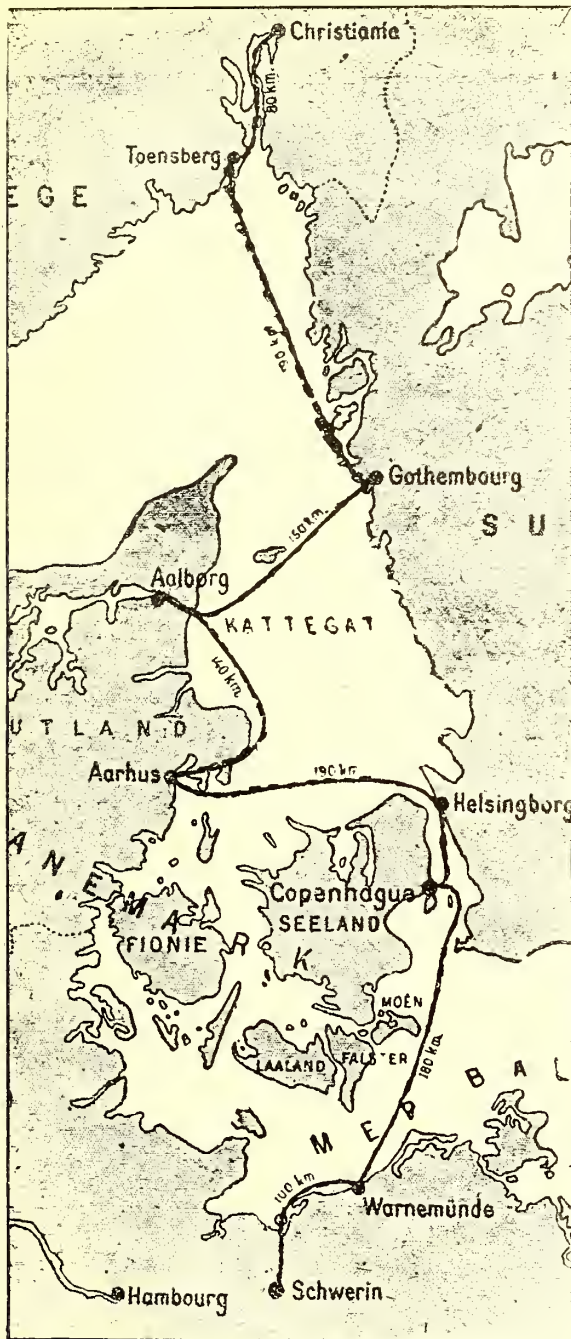
August 28th—Gothenburg to Tönsberg (Norway), 190 kms.

August 29th—Rest day at Tönsberg.

August 30th—Tönsberg to Christiania (Norway), 80 kms.



The Handley Page Inherently Stable Biplane (100-h.p. Anzani), piloted by Mr. Rowland Ding, landing at Bath.



The North Sea Flight Itinerary (From "L'Aero").

Russia.

On Friday, June 19th, at Petersburg, M. Yankovsky, piloting a Sikorsky monoplane, was dazzled by the sun and flew into the ground. His chest was punctured by a strut and he died immediately.

It is reported that on June 20th M. Sikorsky established a record by flying for 6 hrs. 33 mins. 10 secs. with six passengers during the night. During the same day, with 10 passengers, he reached a height of 2,000 metres (6,560 ft.) in 1 hr. 26 mins. 20 secs. These flights were made with two 200-h.p. Salmson motors.

Switzerland.

On June 12th a French biplane, piloted by a military aviator, M. Lugrin, accompanied by an observer, landed on the Ruchfeld near Basle. Coming from Paris on the way to Lausanne,

they lost their way in a thunderstorm, and believing themselves to be on German territory, landed. After replenishing their petrol they reascended for Delemont.

Germany is represented at the National Swiss Show at Berne by an Aviatik and a L.V.G. biplane, as well as a large number of Benz and Daimler motors, accessories and parts.

Australia.

According to the local papers of the middle of last month, Mr. A. B. Stone, an American pilot who flew in Australia in 1912, whose intention to fly from Melbourne to Sydney was mentioned in a recent issue, was to combine an aerial mail service with this trip. Evidently high speed is not necessarily associated with mail service in these parts, as Mr. Stone's schedule time for the 563 miles is 7 days, and the search for gate money en route was still to be prosecuted. Mr. Stone's machine is an Australian-built monoplane of the Blériot type with a 50-h.p. Gnome.

U. S. A.

At 1 p.m. on June 10th the two Curtiss engines to be used in the Rodman Wanamaker transatlantic flier completed a test run of 30 hours, having fulfilled every requirement in speed, power, durability and fuel consumption.

So far as was possible, the expected flying conditions during the transatlantic flight were duplicated in every particular. The motors were started at 7 a.m. on June 9th, mounted side by side, swinging duplicate propellers at the speed estimated as being required for raising the heavily loaded machine at the start of the big flight. For 4 hours the motors ran at an even speed of 1,250 r.p.m. Estimating that after 4 hours enough fuel will have been consumed to permit a slower flying speed, the motors were then set back to 1,200 r.p.m. At intervals of approximately 4 hours the speed was reduced during the day to a minimum of 1,000 r.p.m., which was the slowest speed at which they were operated, though it is estimated the Wanamaker-Curtiss machine will fly with 900 r.p.m.

A record of performance was made every 15 mins., and during the entire 30 hours their respective speeds seldom varied more than 5 r.m.p. Temperature, water evaporation, oil and gasoline consumption were carefully checked every 15 mins. day and night. At the end of the 30 hours' run both engines were again speeded up to the maximum of 1,250 r.p.m.

The total consumption of gasoline during the 30 hours was 288½ gallons; the consumption of oil was 10.5-8 gallons. As Lieut. Porte expects to be in the air not more than 20 hours, he has at least a large margin of safety in carrying this weight of fuel and oil.

This pair of Curtiss O-X motors are similar to those used in the navy's hydro-aeroplanes at Vera Cruz, the one used last summer by Verplanck and Havens in the 1,000 mile flight from Chicago to Detroit, and that used by Lieut. Carberry, U.S.A., in winning the Mackay military trophy at San Diego. Others of the same type are used in the aviation corps of six foreign navies.

After a thorough overhauling, these will be installed in the Rodman-Wanamaker flier, which is rapidly being made ready for its trial flights over Lake Keuka. Among those present during parts of the 30-hour test were Commander William Macdougall, U.S.N.; Dr. A. F. Zahm, of the Smithsonian Institution; and Lieut. Porte, R.N.

The Curtiss transatlantic machine was erected at Hammondsport by Monday, June 22nd, and was duly christened on that day. Lieut. Porte hoped to make his first trial on Tuesday on Lake Keuka.

Our confrères of the American aeronautical Press evidently recognise that which is good when they see it. "Aeronautics" of Chicago regularly "lifts" two pages set in very small type (equal to about four pages of THE AEROPLANE) of foreign news from this paper, and "Aero and Hydro" for June 13th devotes its leader page to the transatlantic flight—half of that space being occupied by the actual words of this paper—though the source is not acknowledged.

It is naturally gratifying that the efforts of this paper to enlighten the world at large should be so thoroughly appreciated across the water, and it is a pleasure to acknowledge on behalf of these papers the source of their inspiration.

The Royal Aero Club.

At the meeting of the Committee on Tuesday, June 16th, the following Aviators' Certificates were granted:—793 Corporal Arthur Claud Robins, R.F.C. (Maurice Farman biplane, Royal Flying Corps, Netheravon). May 21st, 1914. 794 Lieut. Ian Malcolm Bonham-Carter (5th Fusiliers) (Maurice Farman biplane, Central Flying School, Upavon). May 25th, 1914. 795 Leonard Parker (Bristol biplane, Bristol School, Brooklands). May 28th, 1914. 796 Percy Herbert Maskell (Henri Farman type biplane, Shoreham Flying School, Shoreham). May 28th, 1914. 797 Lieut. Gerald Goodwin Carpenter (1st Suffolk Regiment) (Grahame-White biplane, Grahame-White School, Hendon). May 29th, 1914. 798 Lieut. John Collins (3rd Hampshire Regiment) (Vickers biplane, Vickers School, Brooklands). May 29th, 1914. 799 Henry Racine-Jacques (Bristol biplane, Bristol School, Brooklands). May 29th, 1914. 800 Thomas Smith Duncan (Vickers biplane, Vickers School, Brooklands). May 30th, 1914. 801 Ronald Portman Cannon (Henri Farman type biplane, Shoreham Flying School, Shoreham). May 30th, 1914. 802 Midshipman David Sigismund Don, R.N. (Bristol biplane, Bristol School, Brooklands). June 2nd, 1914. 803 Lieut. Kenneth Reid Van der Spuy (S.A. Defence Force) (Maurice Farman biplane, Central Flying School, Upavon). June 2nd, 1914. 804 Sub-Lieut. Lancelot Tomkinson, R.N. (Maurice Farman biplane, Central Flying School, Upavon). June 2nd, 1914. 805 Archibald Maskell (Henri Farman biplane, Shoreham Flying School, Shoreham). June 2nd, 1914. 806 George Evelyn Cowley (Grahame-White biplane, Grahame-White School, Hendon). June 3rd, 1914. 807 George John Lusted (Henri Farman biplane, Shoreham Flying School, Shoreham). June 3rd, 1914. 808 Charles Weber (Grahame-White biplane, Grahame-White School, Hendon). June 5th, 1914. (Subject to permission of Aero Club of Hungary). 809 Rupert Henry Steinbach (Vickers biplane, Vickers School, Brooklands). June 6th, 1914. 810 John Philip Wilson (Vickers biplane, Vickers School, Brooklands). June 8th, 1914. 811 Lieut. John Edward Tennent (Scots Guards) (Vickers biplane, Vickers School, Brooklands). June 9th, 1914. 812 Geoffrey Hugh Eastwood (Bristol biplane, Bristol School, Brooklands). June 9th, 1914.

The following certificate was passed in France:—

Jean Marie Landry (Blériot monoplane, Buc). May 30th, 1914.

The Aeronautical Society.

OFFICIAL NOTICES.

(1) ELECTIONS.—Members: John H. Patterson, Jan Schiere, Col. the Rt. Hon. J. E. B. Seely. Assoc. Member: Lieut.-Col. Stanhope Pedley. Foreign Member: John Gadsby.

(2) ASSOCIATE FELLOWSHIP ELECTION.—Application forms for the next election of Associate Fellows, which will take place in July, can now be obtained from the Secretary, and it should be noted that it is not necessary that the applicants should be members of the Society. Full details will be announced later.

(3) JOINT COMMITTEE WITH THE ROYAL METEOROLOGICAL SOCIETY.—The following gentlemen have been appointed to serve on the above committee: Col. H. E. Rawson, C.B. (chairman); Dr. T. E. Stanton; Lieut.-Col. F. H. Sykes; Alec Ogilvie; and another representing this Society; C. J. P. Cave; Dr. C. Chree; J. S. Dines; and G. K. Lempfert representing the Royal Meteorological Society.

(4) AWARD OF THE SOCIETY'S GOLD MEDAL.—As will be seen by the separate announcement, the gold medal of the Society has been awarded to Professor G. H. Bryan, Sc.D., F.R.S., for the great services he has rendered to aeronautics by his development of the theory of the stability of aeroplanes.

The Trans-Atlantic Flight.

Mr. Charles Rudkin writes from the Royal Automobile Club:—

"Sir,—I observe in your last issue, under the heading 'The Trans-Atlantic Flight,' that you state that 'the information received from America is to the effect that it is doubtful whether the Curtiss machine will be finished in time to start this year, and that Mr. Porte's health is far from satisfactory, so that he may not be able to start in any case.

"Permit me to say that both your statements are incorrect. The Curtiss Flying Boat is practically finished and Lieut. Porte's route via the Azores, which has been kept secret until now, has just been published and arrangements have been made for his reception at each of the proposed stopping places. The last information received from Lieut. Porte a few days ago shows that he is in excellent health, and hopes to start the flight early in July."

[One hopes that Mr. Rudkin's information is correct, but "qui vivra verra."—Ed.]



SOME NEW PILOTS:—(1) Prince Leon Sapieha, (2) Mr. J. B. Grahame, (3) Lieut. V. S. Erskine Lindop, (4) Mr. E. Fraser Norris, (5) Mr. J. R. Howett (all trained at the Grahame-White School at Hendon), (6) Mr. G. Carruthers, (7) Mr. J. Banks-Price, (8) Mr. Frazier Curtis (all trained at the Caudron School at Hendon), (9) Mr. J. W. Slack, (10) Mr. W. Rowland Ding (both trained at the Beatty School at Hendon), (11) Mr. R. C. Cannon (Shoreham Flying School), (12) Engine-Room Artificer Case (Central Flying School, Upavon).

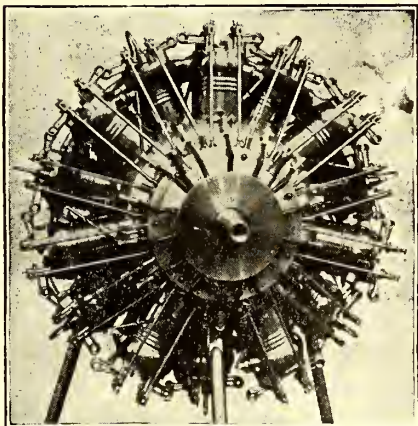


ANOTHER TRIUMPH
IN THE
GREAT AIR RACE
LONDON—MANCHESTER—LONDON
Mr. W. L. Brock (Morane Monoplane, 80 h.p. Gnome)
WINS "DAILY MAIL" GOLD TROPHY AND £400
FOR FASTEST TIME, AND
PRATT'S TROPHY AND £250 ON HANDICAP
USING WAKEFIELD

CASTROL Regd.
THE WORLD'S BEST MOTOR OIL
C. C. WAKEFIELD & CO.,
Wakefield House, Cheapside, London, E.C.

SALMSON AERO-ENGINES

SYSTEM CANTON-UNNÉ.



Phone No.:
7 Stroud.

Tele.
Address:
Humpidge.
Cainscross.

The Dudbridge Iron Works, Ltd.
STROUD, ENGLAND.

*Who are the sole concessionaires for these engines for the
British Empire.*

London Office:—87, Victoria Street, S.W.

'Phone No.: 7026 Victoria. Tele. Address: "Aeroflight Vic London."

The Aircraft Co., Ltd.

Hold the SOLE RIGHTS DIRECT
from the FARMAN BROTHERS
for the building of

HENRY & MAURICE FARMAN

Aeroplanes
AND
Hydro-Aeroplanes.

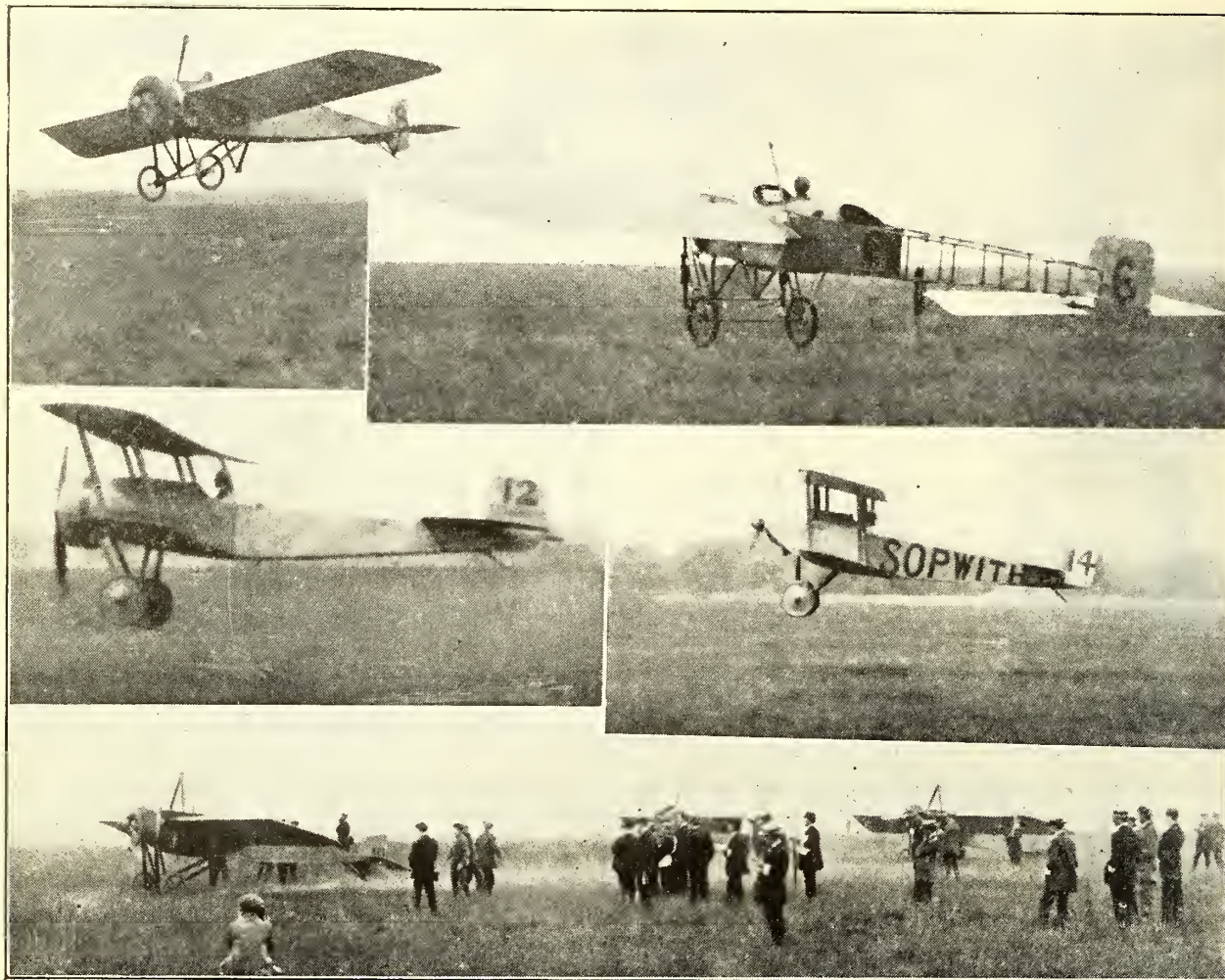
In Great Britain and the Oversea
Dominions.

Works and Flying Ground
HENDON.

Offices:
47 VICTORIA STREET, S.W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

The First Race from London to Manchester and Back.



Starting for Manchester.—No. 8, Mr. Brock, the winner; No. 6, Mr. Strange, the first man to reach Manchester; No. 12, Lord Carbery, who did fastest time to Birmingham; No. 14, Mr. Hawker, the scratch man. Below, M. Noel just beginning to move.

The London-Manchester and back race on Saturday last was a brilliant success, though it threatened to be something very like a failure. In these days, short of an absolute hurricane, wind is no trouble to a practised cross-country flier; the only thing that really troubles him is fog, and of fog there was more than enough when the starting time arrived at 8 a.m. on Saturday. The thunderstorm of the previous night had soaked everything in the neighbourhood of the Thames Valley, and the hot sun of Saturday morning fetched the wet out of the ground in mephitic vapour. However, telephone messages from various points along the route reported cloudless skies and bright sunshine, all trace of fog disappearing as close as St. Albans.

The limit man in the programme, Mr. Björklund, had scratched, owing to hay fever, so the first starter was Mr. Birchenough on the Grahame-White Maurice Farman, who got away at 9.30 a.m. accompanied by one of the Grahame-White crew as passenger.

Mr. Alcock on the Sunbeam Maurice Farman was starting for a test flight a few minutes before he was due to leave, and after flying for half a circuit, landed in the farthest corner of the aerodrome, and after a long delay came tramping back carrying the punctured float of his carburettor, the central tube having sprung a leak where it was soldered into the

barrel. He promptly went off to the Grahame-White workshops, where Mr. J. D. North, the Grahame-White chief designer, proceeded to repair it with his own fair hands.

Meantime, Mr. Strange, who had again obtained leave from the Commandant of the Central Flying School to fulfil his previous engagements, started in very good style at 10.28.48 on the G.-W. Blériot, 80-h.p. Gnome. At 10.56 Mr. Alcock got away, accompanied by Mr. Lane, himself a pilot. By this time the wind had got up considerably and was blowing directly across the sheds, and the air began to clear.

The three Grahame-White Moranes, all with 80 Gnomes, but the machines built at Hendon, were wheeled out to the centre of the aerodrome facing the sheds. Mr. Noel left at 11.3.22, Mr. Brock at 11.6.40, and Mr. Carr at 11.9.42, the slight difference in time being accounted for by the test performances of the machines before Messrs. Reynolds and Ledebor, the handicappers, the previous evening.

Then there was a long wait before Lord Carbery's turn came to start on the Bristol Scout. He made a very pretty test flight during this interval, disappearing in the clouds, which were composed of fog which had been rolled up by the wind. When he came down he reported that so long as one avoided these patches of cloud one could see quite a reasonable distance ahead. While he was waiting to start, Mr.

THE GNÔME ENGINE COMPANY

(Société des Moteurs Gnôme.)

To whom all applications for Gnôme engines and spare parts should be made.

For Great Britain and the Oversea Dominions :

THE GNÔME ENGINE COMPANY, 47, VICTORIA STREET, S.W.

"PERRY-BEADLE

BRITISH BUILT

FLYING BOATS

AND

AEROPLANES.

~~~~~  
Watch our 45 h.p. Tractor Biplane now at Brooklands; the ideal machine for the private owner. Speed, 65 miles per :: :: hour. Price, £450. :: ::

~~~~~  
Every class of Aeronautical constructional work carried out. Send us your enquiries for work to be executed to your own ideas.

~~~~~  
Offices and Works :

**GOULD ROAD, TWICKENHAM.**  
ENGLAND.

Telephone—RICHMOND 1109.

## THE BRITISH CAUDRON COMPANY, LTD.

(Late the W. H. EWEN AVIATION Co., Ltd.)

~~~~~  
British built **CAUDRON** monoplanes, biplanes, hydro-aeroplanes (combined wheels and floats).

The Flying School, which is one of the most successful in this or any country, will be carried on as usual at The London Aerodrome, Hendon.

~~~~~  
**THE WORLD'S DURATION RECORD** was raised to 16 hours 28min. 56 secs. by M. Poulet on a **CAUDRON** Biplane on April 26.

~~~~~  
Telephone : 50 Kingsbury.

BLERIOT MONOPLANES

THE MOST SUCCESSFUL FLYING MACHINES FOR ALL-ROUND PURPOSES.

As demonstrated by the recent experiments conducted by M. PEGOUD, Mr. B. C. HUCKS, and others.

BLERIOT means SECURITY.

BLERIOT-AERONAUTICS.

Offices & Works : BROOKLANDS AERODROME, WEYBRIDGE, SURREY.

~~~~~ SPECIAL INCLUSIVE TERMS FOR TUITION. ~~~~~

**NORBERT CHEREAU, General Manager.**

Telephone : Byfleet 190.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



Mahl arrived from Brooklands on a standard 80 Sopwith two-seater, coming in from the Edgware direction, after having made a couple of circuits of the district, and having landed just to the north of the aerodrome to find out where he was. It was just as well that he and Lord Carbery did not happen to meet in the fog.

Mr. Hawker also arrived from Brooklands, apparently coming exactly on the right course, though he said that when he first sighted the Welsh Harp it was on his left instead of on his right.

At 11.55.50 Lord Carbery got away excellently, doing a sharp banked right-hand turn on reaching about 50 feet, at the end of his first jump off the ground. The little Bristol, now fitted with an 80-h.p. Le Rhone instead of the original 80-h.p. Clerget, seemed quite as fast as with the other engine, and gave everybody an excellent impression.

Then there was another wait of over half an hour, and at 12.20.32, Mr. Hawker, the scratch man, started on the Sopwith scout, commonly known among aviators as a "tabloid." By-the-way, Messrs. Burroughs and Wellcome, who have done so much with their "Tabloid" first-aid outfits to console aviators who may be damaged in accidents, object to the "scout" class of machines being known as "tabloids," the word being registered as their private property, and therefore one must do one's best to restrain oneself from using

what has practically passed into English language as a word expressing concentrated excellence.

Before Lord Carbery started, Mr. Birchenough returned and landed at 11.20, having gone as far as Dunstable. His passenger reported that the pipe connections of the petrol tank were leaking badly, and it was impossible to get as far as Birmingham; besides, there was a danger of the leaks getting worse and the whole machine catching fire. They reported perfectly clear weather as soon as one passed St. Albans.

The first to reach Birmingham was Mr. Strange, followed by Messrs. Brock and Carr. Lord Carbery covered the 91 miles to Birmingham in 61 minutes, which means almost exactly 90 m.p.h. The machine is actually faster than that, but the wind was somewhat sideways, and probably the pilot diverged somewhat from his course. Still, even so, the race looked quite a good thing for him, if he had not had the misfortune to land across the wind, and crumple his chassis and damage a wing slightly. He is the more to be congratulated because he is one of the few young sportsmen who fly because they really like the fun of the thing. It may be well, however, to point out that as he happens to be a member of the Irish Peerage, and not of the English "Beerage," he is not sufficiently overburdened with wealth to ignore the attractions of winning cash prizes or accepting exhibition



[Photograph by Birkett.

At top on left, Mr. Brock and Mr. Carr, the first and second men. In middle, Mr. Alcock, the third man. On right, Lord Carbery. Below, Mr. Brock being chaired in.



engagements, and undoubtedly if he had had the luck to win the race the accompanying cash prizes would have been a very useful aid to his aviation expenses. However, one wishes him better luck in the London-Paris and back race a fortnight hence.

About 2 p.m. Mr. Hawker arrived back, and for some minutes after landing was unable to speak. He had been taken violently ill on reaching Coventry, although this was not the effect of Coventry itself, excusable thought it might seem. Mr. Hawker has for a long time been subject to very bad attacks of headache, one of which it will be remembered afflicted him on his first attempt on the seaplane circuit of Britain last year. It was then ascribed to the heat of the sun, and to exhaust gases getting into the cockpit. On this occasion he thought his illness was caused by the jumping of the machine, caused by its flying at so fine an angle. However, Dr. Leaky, the chief of the St. John Ambulance Corps at Hendon, is strongly of the opinion that these attacks are actually caused by air pressure on the ear drums, and believes they would be avoided by wearing adequate ear guards, and one hopes that Mr. Hawker will experiment with this remedy before starting for another long flight. He was very much disheartened, and pluckily took all the blame himself, for when I asked him what had happened, he simply said, "We had got the machine to win the race, but we had not got the pilot." Everyone was very sorry for him, and for Mr. Sopwith, who has done so much for the sport by entering machines for every big race.

On his return journey from Coventry, Mr. Hawker, instead of keeping the machine level so that she bumped from gust to gust, let her climb steadily up to about 3,000 feet and then came down in a long glide, covering the whole journey in a series of these long switchbacks. Students of Mr. Kipling will remember in his marvellous story of "The Night Mail," how the skipper of the London-Quebec airship described this switchback method of navigating as one means of making the journey comfortable, for very much the same reason as Mr. Hawker. Considering the story was written long before any machine ever flew, the prophecy is somewhat startling.

Shortly after Mr. Hawker's return, news came in that Mr. Noel had run short of petrol somewhere near Coventry, and had been given a couple of gallons by a passing lady motorist, so he was able to continue in the direction of the Birmingham control. He had covered the 70 miles to Coventry in 47 minutes, and Messrs. Carr and Brock did not pass him till nearly half an hour later. Unfortunately he mistook Birmingham Race Course for the Castle Bromwich ground, and on landing smashed his propeller and a wing in a hedge.

The remaining four reached Manchester safely. On starting to return, Mr. Strange had his Blériot taken to the extreme leeward side of the ground where the surface was rough. As soon as he started, the wheels dropped into a hole, one of the straps of the tank broke, as did a wire in the chassis. This wire wrapped itself round the propeller and engine, breaking the propeller and lacerating the cowl. The mishap was particularly regrettable because Mr. Strange is a young pilot of distinct ability, and even if he had not won a place in the race, the mere fact of his getting through would have stood him in good stead. As it is, he has the credit of being the second man to fly from London to Manchester in a day.

There were now only three machines in the race, and the leader, Mr. Brock, arrived at Hendon at 5.49.6. He reported almost perfectly clear weather the whole way after leaving Elstree. Unfortunately, shortly after that point he ran into the one thick cloud in the district, and when he came out he was unable to recognise his whereabouts. Thinking that he had gone farther than he really had he kept on turning his map roller, hoping to be able to locate himself, but as a matter of fact, the map was moving faster than he was, and beat him by about 15 miles into Birmingham. When Birmingham appeared on the map, and was not in sight on the ground, Mr. Brock came down to find out where he

was, and learned that he was a little north of Warwick with some 15 miles still to go. He chose a field with cattle in it, because the cattle were evidence that the grass was short. This is a point cross-country fliers will do well to remember. It was some 10 minutes before anybody arrived on the scene, and then only a single labourer turned up. Having found out where he was, Mr. Brock induced this brave man to swing his propeller, and having seen him clear of the machine, he opened out and reached Birmingham without further incident, recognising the ground by seeing a Henri Farman in it. At Manchester he landed along the arrow placed on the ground to show the landing place, but he said that even at best the ground was a bad one.

Just before Mr. Brock arrived at Hendon a horrible rumour got about that he had run short of chewing gum half an hour from the finish and was unable to continue, but this proved to be a canard.

On alighting he was received with enthusiasm, and after he had been duly chaired from his machine, and multifariously photographed, a representative of the "Daily Mail" made a "tour of honour," as the French call it, along the front of the enclosures in the Grahame-White Co.'s car, Mr. Brock also being present.

Mr. Brock's victory was thoroughly popular, for he is one of the most unassuming aviators who ever flew, and his ability for speech-making is in inverse ratio to his ability as a pilot. He has never indulged in anything approaching trick flying, though doubtless in due course he will loop the loop for the sake of the experience, but those who remember his astonishing performances on the little 35-horse Deperdussin have known all along that he was one of the finest pilots this country has yet produced, for though he is an American, he is, as an aviator, a British product.

After a wait of more than an hour, Mr. Carr arrived at 7.6 p.m., having landed three times to ask his way, and having been drifted a good deal out of his course on the return journey, owing to the wind having considerably increased in the meantime. Though by this time the crowd had departed, Mr. Carr was given a joyous greeting by the people that matter most, namely, his fellow pilots and the other workers in aviation at Hendon, for Carr is one of the best liked of the many good pilots of the aerodrome.

Fifty minutes later, to be precise at 7.56 p.m., Messrs. Alcock and Lane arrived on the Sunbeam-Farman. They had reached Essington on their way back, and had had to find their way back to Birmingham. A new float was fitted at Birmingham going out, and they continued on to Manchester. They reported a very bumpy journey on the return from Manchester to Birmingham, particularly near Macclesfield, when they were both thrown out of their seats over and over again. The Sunbeam behaved perfectly the whole way through the long, trying journey, and was running like a clock when they arrived. There is satisfaction in knowing that the one British engine in the race got through without trouble, for one cannot lay the carburettor trouble at the start to its charge, this being a foreign product. Mr. Louis Coatalen is to be congratulated on the success of his production in its first real trial in a big event, and one is glad to see an old friend like Mr. Alcock putting up such a fine performance. His flying time for the whole journey was exactly seven hours, barring a few seconds, including his stop at Wolverhampton, so that his speed must have been approximating 50 m.p.h. all through, despite a side wind.

So finished the actual race, though those who remained late saw the arrival of yet another aviator from Manchester, Mr. Verrier, with the Aircraft Co.'s chief mechanic, Mr. Perry, as passenger, arriving at 8.45. He left Manchester at 5 p.m. on the Maurice Farman on which he had been giving passenger flights ever since early morning, having taken up about 30 passengers, including various notabilities. He arrived at Birmingham at 6.30, leaving there at 6.50, and reached Hendon at 8.45. Taking in his passenger flights and exhibition flights, he must have covered as big a distance as any competitor in the race, yet, although the aerodrome was empty on his arrival, he performed all sorts of quaint evolu-

tions in his descent for the last 3,000 feet, and landed in his usual way right up to the entrance of the sheds, climbing out in the best of spirits and apparently as fresh as if he had been merely doing his usual afternoon's flying. Truly he is a most extraordinary pilot.

#### The Afternoon at Hendon.

While the Manchester competitors were away, a good deal of flying was done at the Aerodrome. Mr. Hall made a very high flight on his Avro, and also took many passengers, starting and landing in excellent style; Mr. Birchenough flew the Maurice Farman, whose tank no longer leaked appreciably, and Mr. Lillywhite flew the Grahame-White tractor biplane. Mr. Baumann was out on the Beatty-Wright, and several passengers were carried on box-kites.

A six-lap speed handicap was held, Mr. Baumann flying on the Wright, Messrs. Lillywhite and Howarth box-kites, and Mr. Birchenough the Maurice Farman. Mr. Howarth had a nasty sideslip at pylon No. 2, which he cleverly saved, and then dropped out of the race, Mr. Lillywhite being forced to give up at about the same time by engine trouble. The result was Mr. Birchenough first, Mr. Baumann second.

During the afternoon the characteristic bark of a monosoupape Gnome manifested itself, and after some speculation as to what it might be, the Vickers gun-carrying biplane, gun and all, hove in sight at a considerable height, the "invisible gray" paint glittering bravely in the sun. The pilot headed straight across the aerodrome past Mill Hill, where he evolved over a garden party given by Sir Philip Trevor-Dawson, one of the directors of Vickers Ltd. Returning over the aerodrome, he disappeared in the direction of Brooklands, returning once more when everybody was at tea. After entertaining the garden party once more, he turned round, dived straight into the aerodrome, and flew once round the pylons in great style, passing the enclosures a few feet away. Some people said he was over the enclosures. As the machine passed the judge's box, the passenger loosed off with the machine gun, a rather disconcerting performance until one realised that it was not the monosoupape disintegrating. Without landing, Mr. Barnwell climbed steeply and flew back to Brooklands. One regretted that so interesting a machine did not make a longer stay.

The crowd was not so large as one might reasonably have expected, but it was probably well over 10,000, and with the gates at Birmingham and Manchester one hopes that the Grahame-White Co. were adequately rewarded for their enterprise in organising such a classic event. As in the Aerial Derby, two pilots in the firm's employ capture the prize money, in this case some £750, generously given by the proprietors of Pratt's Motor Spirit, and the firm deserves its share.

#### Notes at the Castle Bromwich Control.

A large crowd assembled at Castle Bromwich quite early in the morning and watched Mr. Grahame-White giving exhibition and passenger flights on the Henri Farman (80 Le Rhone). Shortly before midday Mr. Strange on the Blériot was seen, but when over Castle Bromwich Church he turned away to the west and disappeared in the direction of Birmingham, and it was not until Mr. Graname-White ascended in the Farman and flew after him that he realised that he had passed the ground. He then followed the Farman and made a good landing at 12.7, having lost about seven minutes through going astray.

Just at the expiration of his  $\frac{1}{2}$ -hour's stop a Morane came in sight, which proved to be Mr. Carr, and shortly afterwards Mr. Brock arrived on a similar machine. Both pilots reported fog at the start and stated that they had had to land to inquire the way. Before they left Mr. Alcock and Lord Carbery arrived almost simultaneously.

Lord Carbery's Bristol came in at a tremendous speed, made one circuit of the aerodrome and landed with a side wind, which unfortunately blew him over on to the left wing tip. The machine, however, recovered from this and ran a short distance, when a bump in the ground caused it to turn over onto its propeller. It turned over very slowly and came to rest on the propeller and the left wing-tip, but unfortunately in so doing the undercarriage was broken. The remarkable thing, however, was that the propeller was undamaged, and the engine cowl only slightly dented. This mishap was particularly unfortunate, as he had made excellent time between Hendon and Birmingham. Mr. Alcock had burst a tyre on leaving Hendon and was luckily able to obtain a spare wheel and tyre from Mr. Grahame-White, and proceeded on his way.

Mr. Louis Noel arrived shortly afterwards without his machine and reported landing on the racecourse a few miles distant. Both he and Mr. Grahame-White took up a large number of passengers in the course of the afternoon in the Farman, and so filled in the interval until the return of the machines.

The first machine to be sighted coming back was Mr. Brock's, who landed at 4.8 p.m., and he was well on his way back to Hendon before Mr. Carr came in sight. About a quarter of an hour after Mr. Carr's arrival Mr. Alcock arrived on the Maurice Farman, and stated that he had missed his way and landed at Wolverhampton. After these two machines had left and the crowd dispersed a biplane was seen approaching from the direction of Manchester. This turned out to be Mr. Verrier carrying a passenger, who made a very short stay and proceeded.—A. J. A. W. B.

The Figures of the First London-Manchester and Back Race.

| Pilot.       | Machine.      | Motor.           | Hendon.<br>dep.    | Birming-<br>ham. arr. | Man-<br>chester.<br>arr. | Birming-<br>ham. arr. | Hendon.<br>finish. | Remarks.                                                                                             |
|--------------|---------------|------------------|--------------------|-----------------------|--------------------------|-----------------------|--------------------|------------------------------------------------------------------------------------------------------|
| Birchenough  | M. Farman ..  | 70 h.p. Renault  | H. M. S.<br>9-30-0 | H. M. S.              | H. M.                    | H. M. S.              | H. M. S.           | Returned leaking tank.<br>3rd. Delayed 50 mins. by<br>carburettor trouble. Actual<br>start 10-55-50. |
| Alcock .. .. | M. Farman ..  | 100 h.p. Sunbeam | 10-5-54            | 12-56-43              | 2-34                     | 5-43-0                | 8-2-0              |                                                                                                      |
| Strange ..   | Bleriot .. .. | 80 h.p. Gnome .. | 10-28-48           | 12-7-49               | 1-39                     | —                     | —                  | Damaged machine at<br>Manchester.                                                                    |
| Noel .. ..   | Morane .. ..  | 80 h.p. Gnome .. | 11-3-22            | 12-45-0               | —                        | —                     | —                  | Damaged machine at<br>Birmingham.                                                                    |
| Brock .. ..  | Morane .. ..  | 80 h.p. Gnome .. | 11-6-40            | 12-43-39              | 2-2                      | 4-8-30                | 5-49-6             | 1st.<br>2nd.<br>Damaged machine at<br>Birmingham.<br>Retired ill.                                    |
| Carr .. ..   | Morane .. ..  | 80 h.p. Gnome .. | 11-9-42            | 12-39-12              | 2-26                     | 5-19-0                | 7-5-54             |                                                                                                      |
| Lord Carbery | Bristol Scout | 80 h.p. Le Rhone | 11-55-50           | 12-57-20              | —                        | —                     | —                  |                                                                                                      |
| Hawker ..    | Sopwith Scout | 100 h.p. Gnome.. | 12-20-32           | —                     | —                        | —                     | —                  |                                                                                                      |

[A stop of half-an-hour at Birmingham on both out and home journeys, and a stop of an hour at Manchester, were compulsory.] Above are shown the figures relating to the London-Manchester and Back Race. The pilots are given in the order of their starting. The times from Hendon to Birmingham on the outward journey give the best idea of the relative speeds of the machines.



**ACCLES & POLLOCK, LIMITED.**

**OLDBURY, BIRMINGHAM.** Send for 25" X 20" Chart of Full-Size Sections,—Post Free  
TUBE MANIPULATION & PRESSWORK, OUR SPECIALITY.

ALL SIZES, SECTIONS & GAUGES  
OF **STEEL TUBE**  
FOR **AEROPLANES.**  
ONE QUALITY—THE BEST

**CELLON****THE DOPE OF PROVED EFFICIENCY.**

**CELLON, LTD., 17, OLD BROAD STREET, E.C.** Telegrams: "AJAWB LONDON." Telephone: 5359 London Wall.

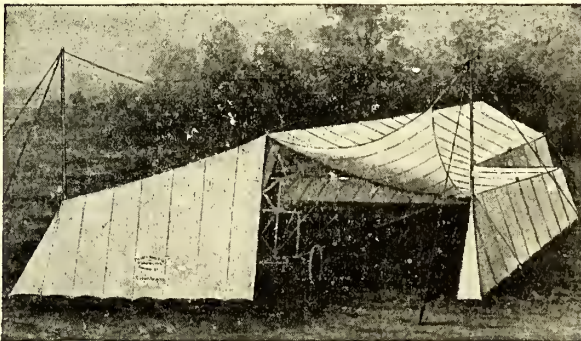
**TENTS FOR AEROPLANES**

The Cheapest, Lightest and most Portable Shelter for an Aeroplane is one of **PIGGOTT'S PATENT AEROPLANE TENTS.**

Pattern No. 3, suitable for a Bleriot Monoplane. Price in waterproof canvas £39.

Weight under 5 cwt. Poles socketed. Can be carried in the back of an ordinary Touring Car.

WRITE FOR SPECIFICATIONS



Indispensable for Circuit Flying or Cross Country work.  
Aeroplane Tents on Hire. Large number in Stock.

**PIGGOTT BROTHERS & CO., LTD.**

(Contractors to the War Office and Admiralty.)

220, 222 & 224, BISHOPSGATE, LONDON, E.C.

**MORE STRONG EVIDENCE**

in favour of the Safety Belt.

In the Report (No. 23) of the Royal Aero Club on Mr. Marty's accident they say:—"The Committee is further of opinion that some form of quick release safety belt might be devised which without hampering the aviator's ordinary movements would restrain such violent forward motion." That is what the

**42/- AVRO 42/-**  
**SAFETY BELT**

does. It is the perfect safeguard for Aviators.

The Strongest Belt. The Quickest Release

Write for Belt, enclosing cash as above, to:

**A. V. ROE & CO. LTD.**  
Clifton Street, Miles Platting, MANCHESTER

**Even a Scratch Counts**

Carry in your pocket the materials  
for dressing cuts, etc.

'**TABLOID**' BRAND **FIRST-AID**

Pocket Outfits:—No. 706, 7/6; No. 710, 2/0

Sold by all Chemists

BURROUGHS WELLCOME & CO., LONDON

**HANGARS.**

Any size built and fitted with

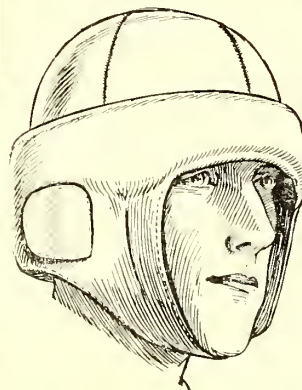
**PERFECT SLIDING DOORS**

obviating all the disadvantages of every present  
system without appreciable increase of price.

Obsolete doors can be exchanged for these new ones.

**GARAGES, CLUB HOUSES**  
and other buildings. Estimates Free.

**WIRE-WOVE ROOFING COMPANY,**  
108, Queen Victoria St., London, E.C.

**The WARREN****SAFETY  
HELMET**

EASY FITTING.  
LIGHT IN WEIGHT.  
WILL NOT FALL OFF.

SOLE  
AGENTS:

**TAUTZ & Co.**  
Sporting Tailors  
12 Grafton St., LONDON, W.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



### How to Learn to Fly.

The offices of THE AEROPLANE frequently receive inquiries from would-be pupils as to which are the best schools at which to learn to fly, and it seems possible that any information affecting this question will be welcomed by a large number of readers.

Through the courtesy of Mr. Beatty, a member of the staff of THE AEROPLANE was given a trial 15-minute lesson on one of the Beatty School Wright biplanes, fitted with the dual control, which has been illustrated in a previous issue. The Beatty School, as readers will have noticed from their announcements, believe that time spent on the ground is wasted, so they take their pupils to the upper air at once.

The sample pupil was straightway inducted to the pupil's seat alongside M. Baumann and taken up to some 300 feet. Arrived at this altitude, he was invited to place his feet on the rudder bar and his hands on the controls, where they remained for a circuit or two, during which all the little movements of the pilot correcting slight disturbances could be felt, although it so happened that the air was very steady and disturbances few. A few sharply banked turns indicated through the movements of the pupil's control the precise degree of rudder and warp movement appropriate to the turn as no amount of instruction on earth could do. Thereafter M. Baumann left the control to the pupil, and the machine pursued the even tenour of its way in a slightly curvilinear path, till some small gust heeled the machine over slightly and the pupil—as some pupils will—warped the wrong way. The instructor corrected this slight mistake, and smilingly drew attention to it, thereafter again leaving the machine to the pupil—or the pupil to the machine—taking charge at intervals to make a sharp turn and finally to descend and land. Having landed, M. Baumann remarked, "It's quite easy, isn't it?" The answer was, "Yes, when you know how."

The particular pupil concerned in this trip has, at various times, spent quite a considerable time in the air as a passenger, and some time ago progressed through the rolling stage to that of making straight flights under the old system of turning the pupil loose on a machine after trying to tell him what he ought to do, and had even, through force of circumstance, made a considerable part of a circuit, but the 15-minute trip on the Beatty-Wright taught him considerably more about handling a machine in the air than he would have been likely to find out for himself under the older method in a couple of hours. Not only does the dual control arrangement enable the learner to feel and see exactly what a capable and experienced pilot is doing during the whole flight, but the fact that the said C. and E. P. is sitting alongside of him with a smile on his face, and that he can, when necessary, shout to him, gives the pupil a feeling of security which enables him to consider things quietly and calmly when and as they happen, which he cannot always do when he is let loose by himself.

The sample pupil, therefore, has no hesitation whatever in recommending anyone in doubt as to the choice of a school to call on the Beatty School at Hendon, where he will always meet with a courteous reception from Mr. Beatty, and can, at any rate, arrange for a similar trial lesson to that described above. The charge of £2 2s. is quite nominal, and is deducted from the tuition fee if the would-be pupil decides to join the school.

There is an agreement between the Beatty School and Handley Page, Ltd., whereby the 50-h.p. Handley Page monoplane forms part of the matériel of the Beatty School, and pupils wishing to learn to fly this machine are trained by Mr. Beatty on the Wright biplanes and then transferred to the monoplane, but Mr. Beatty wishes it to be clearly understood that the school itself is under his sole and undivided control, and is not tied in any way to any manufacturing firm whatever.—W. H. S.

### Palmer Tyre Changes.

The Palmer Tyre, Ltd., notify their customers that there has been a reduction of price in Palmer Cord Tyres. The reduction varies from 10 per cent. to 16 per cent. off covers, and 10 per cent. to 25 per cent. off tubes. The full range of light car tyres has also been reduced.

## The Week's Work.

Weather Report for Week Ending June 21st.

|                 | Mon.  | Tues. | Wed. | Thurs. | Fri. | Sat. | Sun.  |
|-----------------|-------|-------|------|--------|------|------|-------|
| Brooklands ...  | Windy | Fair  | Fine | Fine   | Fine | Fine | Windy |
| Calshot ...     | Fine  | Fine  | Fine | Fine   | Fine | Fine | Fine  |
| Eastchurch ...  | Fine  | Fine  | Fine | Fine   | Fine | Fine | Fine  |
| Hendon ...      | Windy | Windy | Fine | Fair   | Fair | Fair | Windy |
| Waterloo        |       |       |      |        |      |      |       |
| (Liverpool) ... | Calm  | Calm  | Calm | Calm   | Calm | Calm | Wet   |

### Flying at Brooklands.

On Monday Mr. H. Hawker flew to Farnborough on the 100-h.p. Sopwith Scout accompanied by Mr. Mahl and a mechanic on the standard 80-h.p. Sopwith. Mr. Hawker's speed at Farnborough was 111 miles per hour. In the afternoon Mr. Raynham flew a standard 80-h.p. Avro to Farnborough. Mr. Mahl and passenger returned in the 80-h.p. Sopwith. Mr. Jack Alcock having obtained a new propeller returned to Brooklands on the Sunbeam Farman.

On Tuesday afternoon Mr. H. Hawker returned from Farnborough. Bristol and Vickers box-kites were out doing passenger work. Mr. Hawker went up on the 100-h.p. Sopwith Scout and did some vertical banking and three loops. Messrs. Mahl and MacGordon were doing straights on the 80-h.p. Sopwith, and Mr. Dukinfield-Jones was out on the D.F.W. Mr. Hawker again went up and did three more loops in excellent style. The Bristol armoured Scout arrived, a very pretty job.

On Wednesday a new type Vickers gun-carrying biplane arrived in the afternoon. Mr. Pixton and a passenger flew to Eastchurch on an 80-h.p. Sopwith. Lord Carbery's Bristol arrived from the works. Mr. Dukinfield-Jones was out on the D.F.W., Mr. F. Warren Merriam on a Bristol box-kite, and Messrs. Mahl and MacGordon on the 80-h.p. Sopwiths. Mr. Hawker did five loops on the 100-h.p. Sopwith. Mr. Busted tested the Bristol armoured Scout. Mr. Hawker then went up again and made six loops. His latest performance consists of "vol plané" loops with the engine stopped. He also glided at about 20 m.p.h., endeavouring to make the machine side slip, which it refused to do. One could see the warp move from side to side, which only made the machine wobble. The de Bolotoff machine was out, but owing to the mechanics holding on when they should have let go no useful work was done.

On Thursday Mr. Barnwell started for the Vickers aviation ground at Joyce Green, on the gun-carrier, with Mr. A. Knight as passenger and a cargo of oil, instruments and tools, but owing to some goggles coming adrift and breaking one of the sparking plug wires they had to return. Mr. Merriam was out on a Bristol box-kite in the afternoon. Messrs. Barnwell and Knight accomplished the journey to Joyce Green.

Mr. Hawker did three loops on the 100-h.p. Sopwith, but in doing so the excess of petrol at the jet took fire and burnt through one of the longerons. Fortunately Mr. Hawker got down safely, and the machine was packed off to the works to be repaired for the Manchester race. Mr. H. Busted was testing Lord Carbery's Bristol Scout, and later Lord Carbery made a good flight thereon. Mr. Parker, Vickers pupil, took his brevet at 1,800 feet, and three Bristol pupils, Messrs. Smythers, Chambers and Gesley, also took their brevets. Mr. Merriam took Lord Carbery for a passenger flight on a Bristol box-kite. Mr. Mahl took Mr. Hinshelwood on the 80-Sopwith.

On Friday Mr. Jack Alcock was out several times on the Sunbeam Farman, and Mr. Dukinfield-Jones on the D.F.W. Mr. H. Busted went out on the Bristol armoured Scout, and while taxying in a wheel came off and stood the machine on its nose. Lord Carbery then made a test flight on his Bristol Scout and left for Hendon, accompanied by Mr. Jack Alcock on the Sunbeam Farman. Mr. Skene was out testing some new wings of the Martinsyde, which did not turn out very successful. The 100-h.p. Sopwith having been repaired, Mr. Hawker went out for a test flight. Prince de Bolotoff was out on the machine of that name, rolling, doing small circles and figures of eight on the ground.

On Saturday Mr. Gower was out on the 50 Blériot. Mr. Hawker flew to Hendon on the 100-h.p. Sopwith, and Mr.



Mahl on the 80. Mr. Skene was again testing the new wings on the Martinsyde, but owing to the wings and weather conditions he had decided not to start for Hendon. A new Sopwith Scout arrived.

The afternoon was taken up by the British Red Cross Society's Surrey Branch, Chertsey Division, Field Day. For this British troops were supposed to be holding the line of the Surrey Downs between Guildford and Dorking against an invader, and a Clearing Hospital had been established at Brooklands. An Aeroplane Squadron, under the command of Capt. H. F. Wood, 9th Lancers, Reserve of Officers, searched the country for the enemy, finding the wounded, and supplying the fighting line with ammunition. The pilots were, Mr. Barnwell, on the 100-h.p. Vickers fighting biplane, who was out several times during the afternoon, including two trips to Hendon and back with passengers; Mr. E. Gower on a 50-h.p. Blériot; Mr. V. Mahl on an 80 Sopwith with passengers; Mr. V. Wilberforce on a 45-h.p. Anzani Blériot, who put up an excellent show considering the sun and wind conditions; Messrs. Knight and Elsdon on Vickers box-kites; two Bristol box-kites were also out. After the proceedings, Mr. Hawker did some loops on the 100-h.p. Sopwith.

Queen Alexandra made a tour of inspection. Lord Roberts and Sir Frederick Treves also visited the hospitals, and both expressed their satisfaction at the manner in which the display had been conducted.

During Sunday afternoon much flying was done by Mr. Pixton (80 Sopwith Scout), Mr. Hawker (100 Sopwith Scout), and Mr. Mahl (80 standard Sopwith).

### **Flying at Hendon.**

The weather on Thursday was hot and sultry, but a good deal of flying took place. Messrs. Howarth and Norris flew box-kites, and Messrs. Birchenough and Noel flew the Maurice Farman. Mr. Brock flew the 80-h.p. Blériot, and M. René Desoutter flew a Caudron. Mr. Hall made a high flight on his Avro.

On Saturday the London-Manchester and back race took place and is fully reported elsewhere.

On Sunday Mr. Grahame-White took Lady Muir McKenzie and Lady Seafeld as passengers. Mr. Brock flew to a height of 9,000 feet on a Morane, at which height he was invisible in the haze. Mr. Carr looped four times and did a tail slide on the tractor biplane. Mr. Hall was out once more on his Avro, and Mr. Barrs flew a G.-W. biplane.

### **Flying in Ulster.**

Mr. Raynham on the Avro hydro (80 Gnome) and M. Salmét on a Blériot gave "Daily Mail" exhibitions at Lurgan on Thursday and Friday last week. Mr. Raynham's machine is the first waterplane seen in this part of the world, and created much interest. The only getting off and landing place available was a small pond surrounded by trees—very picturesque, but not really the best place for a fast waterplane. Thanks to the particularly good temper of the motor, which rose an extra 100 revs. to the occasion, and to the assistance of the wind on the Friday, Mr. Raynham was able to surmount this difficulty.

On Friday evening Messrs. Raynham and Salmét flew to Warrenpoint—M. Salmét direct and Mr. Raynham following a canal from Portadown. Mr. Raynham's motor had relapsed from its previous good form and only ran on five cylinders most of the way, and owing to this and the wind the 25-mile journey took exactly one hour. Both pilots flew at Warrenpoint all Friday afternoon and evening and on Monday. On Wednesday and Thursday (to-day) Messrs. Raynham and Salmét appear at Bangor, Co. Down, and they will then proceed to the Isle of Man.

### **M. Verrier's Trip to Manchester.**

M. Verrier, carrying his mechanic, Mr. Perry, left Hendon on a Maurice Farman biplane on Friday at 8 a.m., and landing at Castle Bromwich, proceeded to Trafford Park, Manchester, where he arrived at 2 p.m. Next day, after a couple of characteristic exhibition flights, M. Verrier started the serious business of passenger carrying, which continued for over three hours till Mr. Strange, the first arrival in the

London-Manchester race, appeared. Amongst the passengers carried were the Lord Mayor of Manchester and Miss Constance Collier, both of whom were highly delighted with their experiences. About 5 p.m. M. Verrier left to return to Hendon, again carrying Mr. Perry, and arrived safely about 3½ hours later.

### **Mr. B. C. Hucks at Cardiff.**

On Thursday, Friday, and Saturday of last week Mr. Hucks flew at Sophia Gardens, Cardiff. The loop was duly looped many times and long upside down flights made. On Thursday Mr. Hucks had a nasty experience with the two-seater. He was spiralling down from a good height and had reached about 500 feet when his foot slipped on the rudder bar, not having fitted toeclips as advised in *THE AEROPLANE*. The machine started side-slipping, then nose-dived, and dropped 300 feet before Mr. Hucks regained control. On Friday the Chief Constable of Cardiff was taken for a flight over Cardiff. In a height estimating competition six people estimated within 20 feet of the exact figure, and the winner was decided by ballot at the Empire in the evening. On Saturday, on the 80 Blériot, Mr. Hucks flew to a regatta at Penarth and created considerable excitement by playing leap-frog over the boats and the pier, which was crowded with spectators. In the evening Mr. Hucks took a lady to Caerphilly Mountains and had the novel experience of watching his altimeter registering 2,000 feet whilst the ground was only a couple of hundred feet below. On the return trip the machine was lost to view in the clouds. Whilst starting on one occasion Mr. Hucks flew through two telephone wires, but the only damage done were a few scratches on the propeller. The Lord Mayor and Lady Mayoress were present at the afternoon display.

### **Mr. Manton at Scunthorpe.**

On Wednesday and Thursday last Mr. Marcus Manton did much looping at the Scunthorpe Show. The ground had a ridge and furrow surface and Mr. Manton had to make pancake landings on each occasion. Nine landings were made altogether and not a wire was strained, which says something for his skill. The conditions were ideal the first day, but a severe thunderstorm made the second day unpleasant. Four flights were made and many loops, which roused much enthusiasm. On the first day a gentleman asked Mr. Manton in German if he spoke that language. In the same language Mr. Manton informed him that he did not. The stranger then tried French. Again Mr. Manton had to express his regrets for a limited knowledge of that tongue. The man next tried Spanish, and finally, in desperation, spoke some English, and was considerably surprised to learn that the pilot who had been giving such clever demonstrations was just an Englishman.

### **Flying at Bognor.**

The Anzani-Curtiss flying boat was out on Thursday after being held up all the week for a magneto. Mr. Steve MacGordon, the American Curtiss pilot, and Mr. Dukinfield Jones were witnesses of the flights. Mr. MacGordon was very favourably impressed with the boat fitted with the White and Thompson wings, which, he confessed, was a distinct improvement over the ordinary Curtiss machine. Mr. Whitehouse was pilot with Mr. Loftus Bryan as passenger.

Later, Captain E. C. Bass, the owner of the boat, who is more than pleased with her, went up with Mr. Whitehouse and flew to Brighton, doing the 24 miles in 18 minutes, with a slight following wind. They had to put the boat up at Mr. Volk's hangar, as the mist was too thick to make the return journey.

The machine entered by Messrs. White and Thompson for the "Daily Mail" circuit race is being fitted with a Beardmore-Austro-Daimler 120 h.p. engine, instead of the Anzani, as originally intended.—A. B.

### **Flying at Eastchurch.**

On Friday last Mr. Alex. Ogilvie made two short flights on his Wright biplane, 50-h.p. N.E.C. engine. On Sunday Mr. Leo. Jezi made two good flights, one of them with a passenger.

## School Reports.

**Hendon.**—AT GRAHAME-WHITE SCHOOL: Instructors: Messrs. Birchenough, Howarth, Lillywhite and Barrs. Pupils with instr on machine: Messrs. Shepherd, Palmer, Courtney, Liu, Wyles, Gruning, North. Strts or rolls alone: Messrs. North and Lowe. 8's or circs alone: Messrs. Robinson, North, Lowe, Dunn. Machines in use: G.-W. school biplanes.

AT HALL FLYING SCHOOL.—Instructors: Messrs. J. L. Hall and J. Clappen. Pupils with instr on machine: Miss D. Clifford, Messrs. A. L. Brookes, Haines, A. F. Arcier, R. Gibson and Charig. Strts or rolls alone: Messrs. Charig (2), Gibson (2), A. F. Arcier, H. Gearing, A. L. Brookes (12 apiece). Machines in use: Avro and Caudron biplanes, Deperdussin monos. New motor fitted to brevet machine. 50 Avro has now flown successfully some 6,000 odd miles.

AT THE BRITISH CAUDRON SCHOOL.—Instructors: Messrs. W. T. Warren and René Desoutter. Pupil with instr on machine: Mr. Abbott. Strts or rolls alone: Mr. Macgregor, Mrs. Buller. Machines in use: Two Caudron biplanes (35 h.p.). Messrs Warren, Desoutter, and Mrs. Buller gave exhibition flights.

**Brooklands.**—AT BRISTOL SCHOOL: Instructors: Messrs. Jullerot, Merriam, and Stutt. Pupils with instr on machine: Messrs. Treloar (29), Charlesworth (15), Rutledge (16), Adamson (23), Godwin (30), Lt Richard (2), Capt Bernard (7), Capt Napier (10), Lt Nugent (5), Mr. Lucas (10), Lts Coles (9), Smythies (1). Strts or rolls alone: Lt Nugent (2), Messrs. Rutledge (1), Adamson (4), Charlesworth (1). 8's or circs alone: Messrs. Gresley (7), Chambers (6), Lts Nugent (4), Richard (4), Smythies (2). Certificates taken: Mr. Chambers, Mr. Gresley and Lt Smythies on June 18th and 19th. Machines in use: Three Bristol school biplanes.

AT VICKERS SCHOOL: Instructors: Messrs. Barnwell, Knight, Elsdon, and Webb. Pupils with instr on machine: Capt Kane (21), Lts Clemson (22), Gillman (11), Warrand (14), Eberli (2), Mr. Klingenstein (7). 8's or circs alone: Lt Eberli (9), Messrs. Parker (12), Miller (8), and Klingenstein

(3). Certificate taken: Mr. J. Parker. Machines in use: Three school biplanes.

**Liverpool (Waterloo).**—AT LIVERPOOL AVIATION SCHOOL: Instructor: Mr. H. G. Melly. Pupil with instr. on machine: Mr. Osborne Groves (22 mins). Strts or rolls alone: Mr. Osborne Groves. Machines in use: 2 Blériot monos. Mr. Melly did fig. 8 in evening, solo on Tuesday. On Wednesday took up Messrs. Isaacson (to 1000) and Groves (to 800), and alone (to 1,200) each 10 mins., to Formby and back; engine pulling well.

DOPE WITH

NOVAVIA

9, Coral Street, W.C.

THE DOPE

## MISCELLANEOUS ADVERTISEMENTS

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY to ensure insertion. For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, 166, Piccadilly, W. Special PREPAID Rate—18 words 1/6; Situations Wanted ONLY—18 words 1/-. 1d. per word after.

## PATENTS.

"HOW TO TAKE OUT PATENTS IN ENGLAND AND ABROAD." (By Arthur E. Edwards, F.C.I.P.A.) 2s. post free.—ARTHUR EDWARDS & CO., LTD., Patent Agents and Consulting Engineers, Chancery Lane Station Chambers, W.C. 'Phone 4536 Holborn.

PATENTS. Instructive leaflet Free, from STANLEY, POPPLEWELL & CO., Chartered Patent Agents, 38, Chancery Lane, London, W.C.

PATENTS.—How to Patent Inventions Particulars with advice, sent free.—Write, KING, Registered Patent Agent, 165, Queen Victoria Street, London.

THE proprietor of the patents Nos. 13417 of 1909 and 14414 of 1909 for "Improvements in or relating to Airships" is desirous of entering into arrangements by way of licence and otherwise, on reasonable terms, for the purpose of exploiting the same and ensuring their full development and practical working in this country.—All communications to HASLITINE, LAKE & Co., Chartered Patent Agents and Consulting Engineers, 28, Southampton Buildings, Chancery Lane, London, W.C.

## TUITION.

EASTBOURNE AVIATION CO., LTD.—Waterplane and Biplane tuition on Bristol and Farman machines. A splendidly equipped school. Every facility for thorough practical training. Waterplane Hangars with convenient slipway to left. For terms and full particulars apply THE AERODROME, EASTBOURNE.

## THE CAUDRON SCHOOL OF FLYING, CAUDRON BIPLANES &amp; MONOPLANES.

Flying and practical construction. Thorough tuition for ordinary and superior brevets.

If you seek the best machine and the best-equipped School, enquire what the Caudron pupils are doing.

THE BRITISH CAUDRON CO., LTD.,  
London Aerodrome, Hendon.

VICKERS, LTD.—AVIATION SCHOOL at Brooklands. Thoroughly graded tuition on biplanes of up-to-date construction.

## Fit Palmer Cord Tyres

You then have tyres that grip and never slip, that give buoyancy and added speed, lessen driving strains, absorb road shocks, reduce petrol consumption, and keep you free from annoying tyre troubles on the road.

SEND FOR THE GREATLY  
REDUCED PRICE LIST OF

**PALMER**  
CO-INVENTORS OF  
THE THREE RUB. TREAD

**CORD TYRES**

THE PALMER TYRE, LIMITED,  
119, 121, 123, Shaftesbury Avenue, LONDON, W.C.

Phones: 1214 Gerrard (Four lines). Grams: "Tyricord, Westcent, London"

PARIS: 152, Avenue de Malakoff.—AMSTERDAM: Stadhouder-  
skade 91.—GLASGOW: 6, Royal Exchange Sq.—BIRMINGHAM:  
Belmont Row.—COVENTRY: St. Mary's Street.—NOTTING-  
HAM: Greyfriar Gate.—LEEDS: 54, New Briggate.—  
MANCHESTER: 263, Deansgate.



**THE** success of **THE GRAHAME-WHITE SCHOOL OF FLYING** is due to the following:—(1) The excellence and accessibility of the aerodrome where the School operates; (2) the unique experience on which its organisation and methods are based; (3) the skill of its instructors and suitability of its machines. The object of the school is to give thorough training, not merely to hurry a pupil through his certificate tests. Write for illustrated prospectus, "Learning to Fly," to the **GRAHAME-WHITE SCHOOL**, London Aerodrome, Hendon, N.W. Telephone, Kingsbury 120. Or 166, Piccadilly, W. Fee, £75, includes all breakages and third-party insurance. Reduced terms to naval and military pupils.

**THE SHOREHAM FLYING SCHOOL.**—The Shoreham Aerodrome, Sussex. Complete and thorough tuition on Henri Farman type biplane for the inclusive fee of £50. Passenger-carrying. Exhibitions.

**PASHLEY BROTHERS,**  
**SHOREHAM AERODROME, SUSSEX.**

*Tuition for R.A.C. Brevet.*

Before joining any other school, apply for particulars of our **SPECIALLY REDUCED TERMS AND NEW CONCESSIONS TO PUPILS.**

*Passenger Flights.*

**HALL FLYING SCHOOL.**

**HALL FLYING SCHOOL.**—TUITION—Flying and Constructional—given on

A vro Biplanes.

B leriot Monoplanes.

C audron Biplanes.

D eperdussin Monoplanes.

N.B.—Only tractor machines in use.

**PASSENGER FLIGHTS.**

Flying exhibitions.—Write at once for full particulars gratis to **HALL AVIATION CO.**, London Aerodrome, N.W.

## PROPELLERS.

**BLACKBURN PROPELLERS.**—Quick delivery; standard types in stock. Metal-tipped for hydro-aeroplanes, as supplied to the Admiralty.—**THE BLACKBURN AEROPLANE COMPANY**, Leeds.

## EMPLOYMENT.

**PUPILS** required to assist in the designing of air-ships, sheds, docks, safety arrangements, working drawings and calculations, draughting-out of patent drawings and specifications, etc. Small premium, progressive salary.—**WULFFING**, Aeronautical Engineer, 25, Hogarth Road, Earl's Court.

**SIR W. G. ARMSTRONG, WHITWORTH & CO., LTD.**, Aircraft Department, Gosforth, Newcastle-on-Tyne, require two aviation draughtsmen well acquainted with mathematics; also several improver draughtsmen.

**YOUNG** gentleman, age 21, public school, with theoretical knowledge in engines, seeks employment in aeronautical works. He would pay £100 in return for salary of £2 10s. and tuition in piloting. One or two years' agreement.—Box 272, c/o **THE AEROPLANE**, 166, Piccadilly, W.

**WANTED**, boatbuilders used to light work.—Apply **THE SOPWITH AVIATION COMPANY, LIMITED**, Kingston-on-Thames.

## MACHINES.

**CAUDRON** biplane, 60 h.p. Gnôme, practically new; cheap for quick sale; owner going abroad.—**M. Z.**, Hendon Aerodrome.

**DUNNE PATENT SAFETY AEROPLANES**, single and two-seater types, mono or biplane.—**THE BLAIR ATHOLL AEROPLANE SYNDICATE, LTD.**, 1, Queen Victoria Street, London. Tel. 834 Bank.

## PHOTOGRAPHS.

**THE** favourite photograph of Mr. Gustav Hamel may be obtained from **F. N. BIRKETT**, Photographer, 97, Percy Road, Shepherd's Bush, N.W., at the following prices, post free, unmounted:—12 by 10 in., 2s. 2d.; 8 by 6 in., 1s. 6d.; 6 by 4 in., 1s. 2d.—on mentioning **THE AEROPLANE**. Also, at same prices, photographs of the late Phillipe Marty, Robert Slack, and Lee Temple.

## MISCELLANEOUS.

**WILLOWS AIRSHIPS.**—Passenger-carrying over Hendon, London, or across country by day or night. Dirigibles constructed to own or any specification. Publicity flights arranged.—**THE WILLOWS AIRCRAFT CO., LTD.**, Hendon Aerodrome.

**HARDWOODS** for Aeroplanes; Air-dried Timber, specially selected, as supplied to leading constructors. Silver Spruce, Ash, Parang, Mahogany, Hickory and Ash Skids, Walnut, Three-ply, Laminated blocks, guaranteed perfect timber supplied for propellers.—**WM. MALLINSON & SONS, LTD.**, 130, Hackney Road. 'Phone 4770 Wall.

**LUNCH, TEA, or SUP at—**

**"THE AERO RESTAURANT."**

(Just outside the gates of the Hendon Aerodrome.)

Pretty Tea-Gardens, with awnings, for fine weather. Glass-sided "Sun-Parlour" for cold weather.

Best of Food, well cooked and neatly served.

Lunch from 1s. 6d.

Tea from 6d.

Trade **MENDINE** Mark.

**LIQUID SCOTCH GLUE**

Ready for use at once.

USED BY THE LEADING AEROPLANE CONSTRUCTORS.  
**MOISTURE PROOF.**

Write for Price List and Particulars—

**MENDINE CO.**, 8, Arthur Street, London Bridge, E.C.

## MODELS.

**T. W. K. CLARKE & CO., HAMPTON WICK, MIDDLESEX.**

'Phone: Kingston 869.

**CLARKE No. 1. AERO SILK**, a New Covering, 1/- per yard.

**BENTWOOD PROPELLERS**, any hand, 1d. per in. Carved ditto., 2d. per in.

**ELASTIC**, guaranteed finest **Para Strip**, 1/4 and rod. per doz. yards.

**MODELS** from 1/- to 30/-.

**TRADE SUPPLIED.**

Send stamp for Lists.  
**SPECIAL TERMS TO CLUBS.**

**M.S.C.** MONOPLANE No. 1, price 1s. 6d., post-age 2d. Size No. 2, 3s., postage 3d. These models are beautifully finished and genuine flyers. We stock everything for models.—**MURRAY, SON & CO.**, 387a, High Road, High Cross, Tottenham, N.

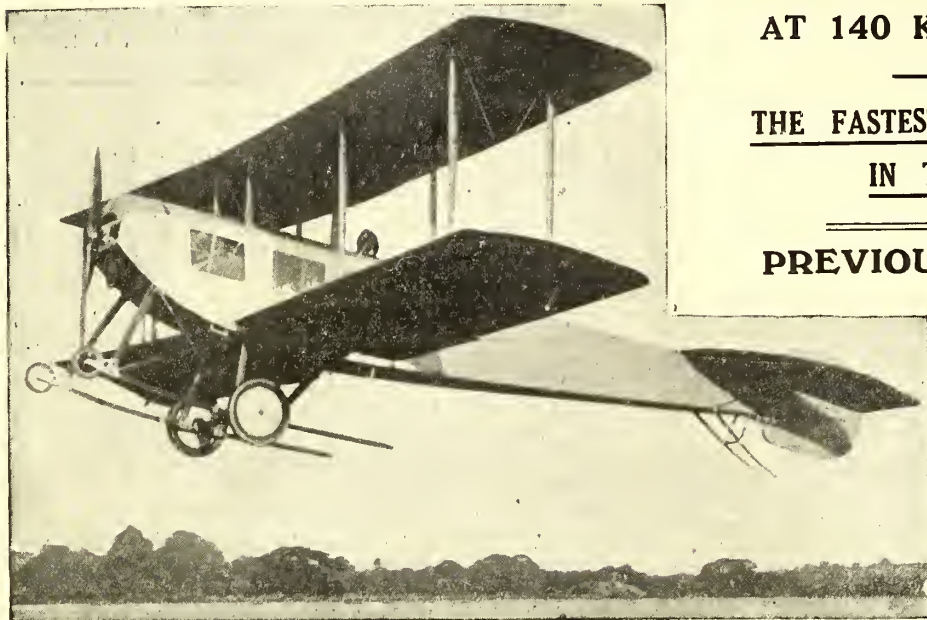


**THE LATEST SOPWITH SUCCESS:—**

# WINNING OF THE SCHNEIDER CUP

**AT 140 KMS. PER HOUR.**

**THE FASTEST HYDRO-AEROPLANE  
IN THE WORLD.**



**PREVIOUS RECORDS on  
the preceding type  
of SOPWITH  
BIPLANE (80 h.p.  
Gnome).**

**British Height Record  
(Pilot alone) 11,450 ft.**

**British Height Record  
(Pilot and 1 Passenger)  
12,900 ft.**

**British Height Record  
(Pilot and 2 Passen-  
gers) .. 10,600 ft.**

**WORLD'S Height  
Record (Pilot and 3  
Passengers) 8,400 ft.**

**ALSO, British Duration  
Record, 8 hrs. 23 mins.  
with British A.B.C.  
Engine 40 h.p.**

**THE SOPWITH AVIATION CO. Ltd.** (Contractors to His Majesty's  
Admiralty and War Office.)  
Telephone: 1777 & 1343 KINGSTON. Offices and Works: KINGSTON-ON-THAMES.  
Telegrams: "SOPWITH, KINGSTON."



**T**HIS is an illustration of the Cover of the 1914 Fixture List, which contains numerous illustrations of the Flying at Hendon, a complete list of Fixtures and Events for 1914, and particulars of Passenger Flights, Routes to Hendon, Season Tickets, etc. Free on application to Department A, London Aerodrome Offices, 166 Piccadilly, London, W.

## HENDON

Wonderful Air Racing, every  
Thurs. and Sat. from 3 p.m.

**TO-DAY, Thursday, June 25th.  
DESPATCH CARRYING RACE.**

**NEXT SATURDAY, June 27th.  
MIDSUMMER MEETING.**

**12 Mile Speed Handicap for the 'SHELL'  
2 TROPHY and 50 Guineas.**

*Presented by the Distributors of "Shell" Motor Spirit.*

**Thursday, July 2nd,  
BIPLANE ALTITUDE CONTEST.**

**Saturday, July 4th.  
LADIES' DAY AT HENDON.**

**Saturday, July 11th.**

**HENDON — PARIS — HENDON  
AIR RACE**

**Special Displays every Sunday  
Afternoon (2.30 p.m. till dusk)**

Admission 6d., 1s., 2/6 Children Half-price. Motors 2/6 (Inc. chauffeur)

**London Aerodrome, Hendon, N.W.**





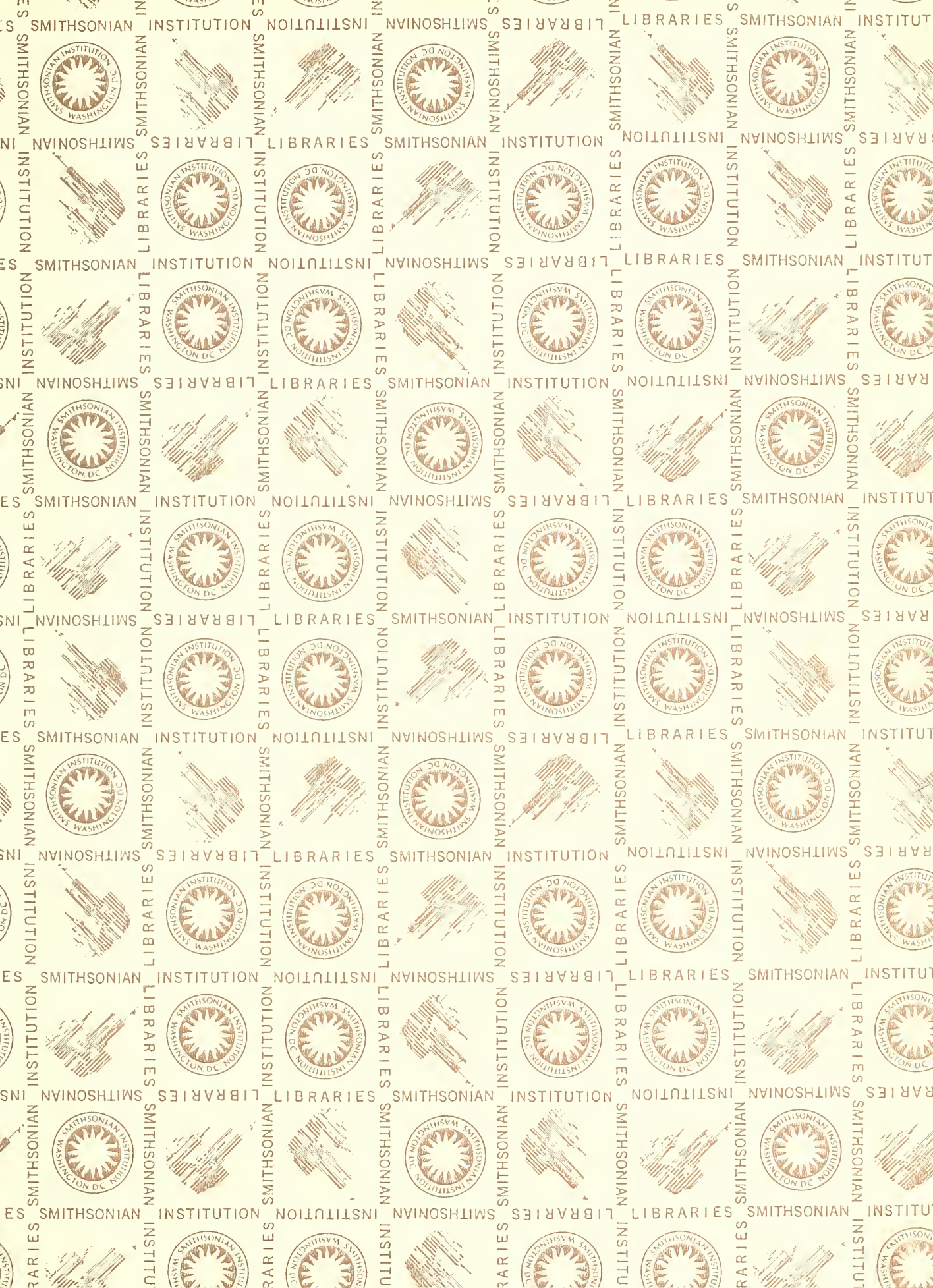












SMITHSONIAN INSTITUTION LIBRARIES



3 9088 00710 7402